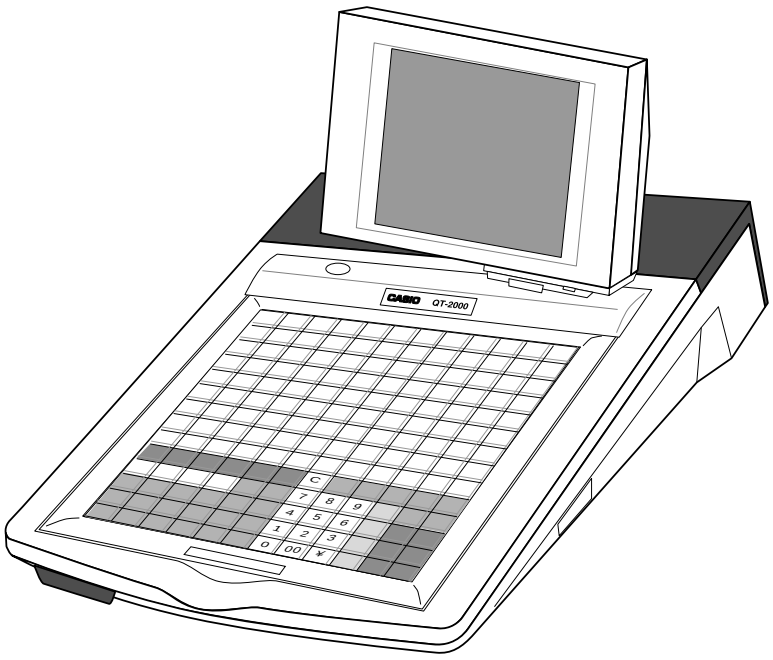
SERVICE MANUAL

(without price)

ELECTRONIC CASH REGISTER

QT-2000 (EX-580)

JUNE 1997



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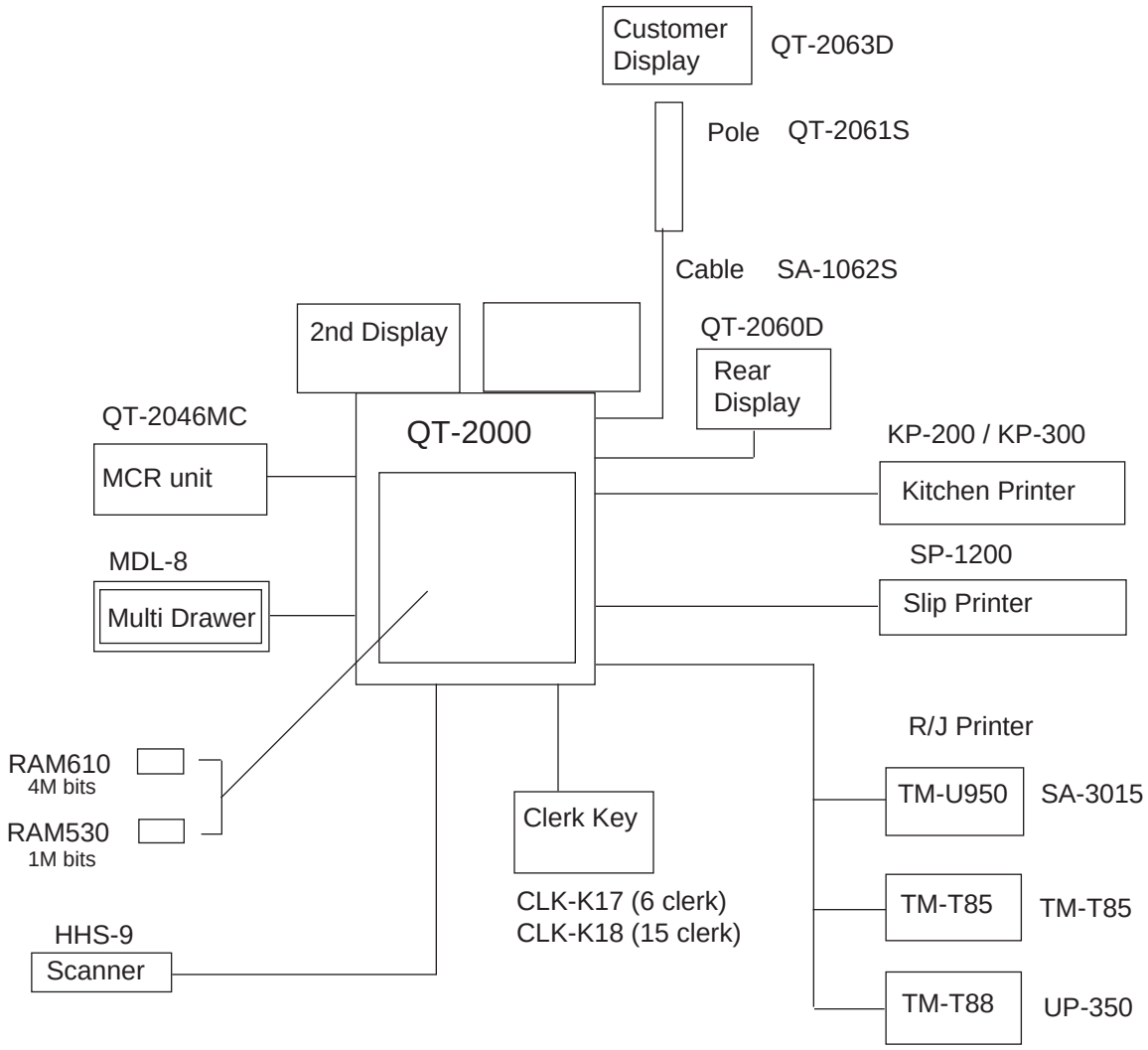
1. GENERAL

1-1. System chart



The QT-2000 has the following unique points:
(The system configuration is shown in the chart above.)

1. Separete R/J printer

2. Small foot-print and low-profile design

3. LCD display : Max. 2 LCD display

4. Flat keyboard menu holder : Max. 8 menu can be contorolled.
   4 (direction) x 2 (holder)

5. Data backup function by EEPROM (Flash ROM)

6. Infrared communication interface

1-2. Device list (Option)

No.	Model Name	Device Name	Note
		Sheet holder	
1	SH-KIT1	Sheet holder kit	2 holders (1st - 4th, 5th - 8th)
		Kitchen Printer	
2	KP-200	Kitichen printer	
3	KP-300	Kitchen printer	with auto cutter
		Slip printer	
4	SP-1200	Slip printer	
		R/J printer	
5	SA-3015	R/J and slip printer	TM-U950 Paper size : 70mm Dot matrix printer
6	TM-T85	Receipt printer	TM-T85 Paper size : 80mm Thermal printer
7	UP-350	Receipt printer	TM-T88 Paper size : 80mm Thermal printer
8	PS-150/PS-170	AC adaptor	for TM-T85 / UP-350
9	SA-3087TM	Printer cable (Cable length : 3 m)	for TM-T85 / UP-350
		Display	
10	QT-2062D	Second LCD display	
11	QT-2060D	Rear display	
12	QT-2063D	Customer display	
13	QT-2061S	Pole	for QT-2063D
14	SA-1062S	Expantion cable (Cable length : 5 m)	for QT-2063D
		Multi drawer	
15	MDL-8	Multi drawer kit	Additional 1 drawer
		Memory	
16	RAM-610-10LL	RAM chip	4 M bits chip
17	RAM-530-10	RAM chip	1 M bits chip
		MCR	
18	QT-2046MC	Magnetic card reader	
		Clerk key	
19	CLK-K17	Clerk key kit	for 6 clerk
20	CLK-K18	Clerk key kit	for 15 clerk
		Hand held scanner	
21	HHS-9	scanner	RS-232C

2. SPECIFICATION

2-1. QT-2000

Power consumption		120V	230V
	In operation	Max.: 0.7A	0.4A
	Stand-by	Max.: 0.4A	0.3A
	Mode SW OFF	Max.: 0.3A	0.2A
Memory	Standard:	384 KB	
	Max:	1MB	
Memory protection	Back up battery	Lithium-Banadium battery VL3032/S6A	
	Back up period	30 days (25°C)	
	Battery life	Replace every 5 years	
	Charging time	48 hours for full charge	
Clock and calender	Accuracy	within ±30 sec./month (25 °C)	
	Auto calender	Effective 2099 A.D.	
Environment	Operating temperature	0°C ~ 40°C	
	Operating humidity	20% ~ 65%	
	Strorage temperature	-20°C ~ 60°C	
	Storage humidity	10% ~ 80%	
	In the carton box : Storage temperature		-20°C ~ 65°C
	Storage humidity		10% ~ 80%
LCD display	LCD life	15,000 hours	
Back light	Back light life	10,000 hours	
Power prutection battery	No function		

CAUTION
Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacture's instructions.

VORSICHT !
Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ADVARSEL !
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandØren.

2-2. Printer

2-2-1. Model name : SA-3015

Item	Description
Printer name	TM-U950
Power source	+24V DC ±10%
Current consumprion	R/J Average : Approx. 1.8A Max : Approx. 8A Slip Average : Approx. 2.3A Standby : 0.3A
Print method	Serial impact dot-matrix printer
MCBF	5,000,000 lines (auto-cutter and stamp once every 15 lines)
Print speed	233 CPS (9x9 dots : High speed) 311 CPS (7x9 dots : Low speed)
Charactor per line	R/J : 30 (9x9), 40 (7x9) Slip : 66 (9x9), 88 (7x9)
Stamp size	42 x 20 mm (Print area)
Roll paper	Type : Fine quality paper (Single layer only) Width : 69.5 ±0.5 mm Paper diameter : 83 mm or less Paper thickeness : 0.06 to 0.09 mm
Slip paper	Type : Plane paper, Carbon copy paper, Pressure-sensitive paper Number of paper : Original + 4 copies Dimension : 70x70 to 210x297mm (WxH) Thickness : 0.09 to 0.36mm
Ink ribbon	Type : ERC-31 Ribbon life : 7,000,000 characters (18 dots per charactor)
Interface	Serial RS-232C interface

2-2-2. Model name : TM-T85

Item	Description
Printer name	TM-T85
Power source	+24V DC ±7%
Current consumprion	Average : Approx. 1.3A Max : Approx. 6.0A Standby : Approx. 0.1A
Print method	Line thermal printing method
MCBF	3,500,000 lines (font A printing)
Print speed	12 lines/sec. (1/6 inch line feed) 13 lines/sec. (1/9 inch line feed)
Charactor per line	42 digits (12x24), 56 digits (9x7), 21 digits (24x24)
Print width	72mm
Roll paper	Type : Prescribed thermal paper Width : 80mm Paper diameter : 83 mm or less Paper thickeness : 65±5µ m
Interface	Serial RS-232C interface

2-2-3. Model name : UP-350 (TM-T88)

Item	Description
Printer name	TM-T88
Power source	+24V DC ±7%
Current consumprion	Average : Approx. 1.5A Max : Approx. 5.0A Standby : Approx. 0.2A
Print method	Line thermal printing method
MCBF	10,000,000 lines (font A printing)
Print speed	High speed : 16.5 lines/sec. (1/6 inch line feed) Low speed : 11.8 lines/sec. (1/6 inch line feed)
Charactor per line	42 digits (12x24), 56 digits (9x7)
Print width	72.2 ±0.2mm
Roll paper	Type : Prescribed thermal paper Width : 79.5±0.5mm Paper diameter : 83 mm or less
Interface	Serial RS-232C interface

2-3. Slip printer

Model name : SP-1200

Item	Description
Printer name	Model 290
Power source	+24V DC ±10%
Print method	Dot print (with built-in shuttle head)
MCBF	1,500,000 lines
Print speed	Approx. 2.3 to 1.9 lines/sec.
Charactor per line	Max. : 35 digits (5x7)
Slip paper	Type : Prescribed thermal paper Carbon copy paper Pressure-sensitive paper Width : 80x80 to 182x257mm (WxL) Number of paper : Max. : 3 sheets (Original + 2 copies) Thickness : Total thickness : 0.35mm Nomal paper : 0.09 to 0.25mm Copy paper :Base sheet : 0.07 to 0.2mm Duplicate : 0.04 to 0.07mm Carbon paper : Approx 0.035mm
Ink ribbon	Type : ERC-27 Ribbon life : 1,500,000 characters
Interface	Serial interface

2-4. Kitchen printer

Model name : KP-300

Item	Description
Printer name	DP-617
Power source	AC115V / AC230V
Current consumprion	30w
Print method	Serial impact printing method Both direction printing
MCBF	Printer mechanism : 2,500,000 lines Head : 50,000,000 character
Print speed	2.4 lines/sec.
Character per line	40 digits 400 dots/line
Roll paper	Width : 76mm Paper diameter : 80mm or less
Ink ribbon	RE-1
Interface	RS-422 interface

Model name : KP-200

Item	Description
Printer name	DP-575
Power source	AC115V / AC230V
Current consumprion	25w
Print method	Serial impact printing method 1 direction printing (L to R)
MCBF	Printer mechanism : 1,500,000 lines Head : 50,000,000 character
Print speed	1.2 lines/sec.
Character per line	40 digits
Roll paper	Width : 69mm Paper diameter : 80mm or less
Ink ribbon	RB-2
Interface	RS-422 interface

2-5. Hand scanner

Model name : HHS-9

Item	Description
Power supply	+5.0 V DC ± 5%
Power consumption	Max. 0.4 W
Rush current	Max. 1.5 A
Operating temperrature	0 to 40°C
Operating humidity	10 to 90% RH (not to condence dew)
Reading width	65 mm
Reading resolution	less than 0.125 mm (NW-7,CODE39,ITF,STF) less than 0.15 mm (CODE93,CODE128)
PCS value	0.45 or more (wavelength 660 nm, white bar reflectivity ≥ 85%)

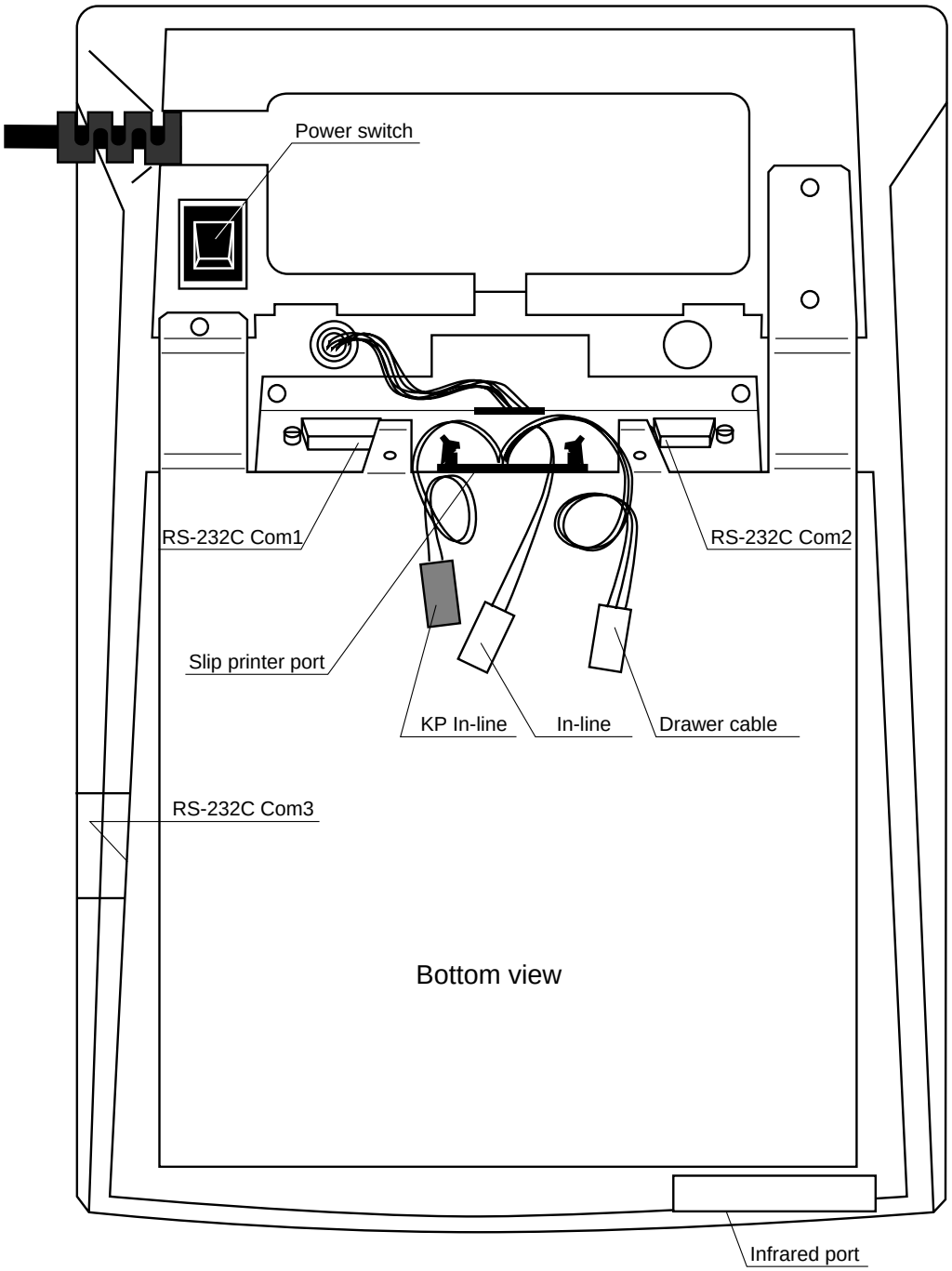
2-6. MCR

Model name : QT-2046MC

Item	Description
Model Name	ZU-M1242S4
Card feed	Manual operation
Data read direction	One way (from right to left)
Read/Write	Read only
Magnetic card	ISO 7810 , ISO7811
Magnetic stripe encode	Track 1: ISO1(IATA) Track 2 : ISO2(ABA)
Size	90 mm (L) x 25 mm (W) x 24 mm (H)
Weight	About 28 g (Mechanisn only)
Power supply	5 V DC ± 10%, 6.0 mA (typ.) 9.0 mA (max.)
Feed speed	10 to 1500 mm/sec.
Life of magnetic head	300,000 pass (min.)
Life of electric circuit	50,000 hours
Error rate	1/1,000 (max.)

3. QT-2000 CONNECTOR LOCATIONS

3-1. QT-2000 connector location



Com 1 :	for hand held scanner HHS-9
Com 2 :	for R/J printer (UP-350, SA-3015 and TM-T85)
Com 3 :	for MODEM or PC
Power switch :	for service maintenance Make sure off this switch when open the machine. Because, the power is applied even if the mode swith is off.

3-2. Interface pin asignment

Com1: Hand held scanner HHS-9 (Location : CN2 on E580-CNB)

Pin No.	Description
1	TXD1
2	RXD1
3	RTS1
4	CTS1
5	DSR1
6	DTR1
7	GND
8	NC
9	VCC
10	NC
11	GND
12	NC
13	NC
14	NC
15	GND

Com2 : R/J printer (Location : CN1 on E580-CNB)

Pin No.	Description
1	NC
2	RXD2
3	TXD2
4	DTR2
5	GND
6	DSR2
7	RTS2
8	CTS2
9	NC

Com3 : Modem / PC (Location : CN4)

Pin No.	Description
1	CD3
2	RXD3
3	TXD3
4	DTR3
5	GND
6	DSR3
7	RTS3
8	CTS3
9	CI3

Slip printer : SP-1200 (Location : CN10)

Pin No.	Description
1	VCC
2	VCC
3	Sensor signal
4	NC
5	VP
6	VP
7	VP
8	VP
9	Busy signal
10	NACK signal
11	GNDP
12	GNDP
13	Data signal
14	GNDP
15	NC
16	Clock signal
17	Clear signal
18	Reset signal
19	GNDP
20	GNDP

Kitchen printer : KP-200, KP-300 (Location : CN2)

Pin No.	Description
1	TXD (Red wire)
2	RXD (Black wire)

In-line I/F : C In-Line (ARCNET) (Location : CN2)

Pin No.	Description
3	RXD (Black wire)
4	TXD (Red wire)

Drawer I/F (Location : DW1)

Pin No.	Description	
1	Drive signal	(Red wire)
2	Power	(Black wire)
3	Sensor siglal	(Brown wire)

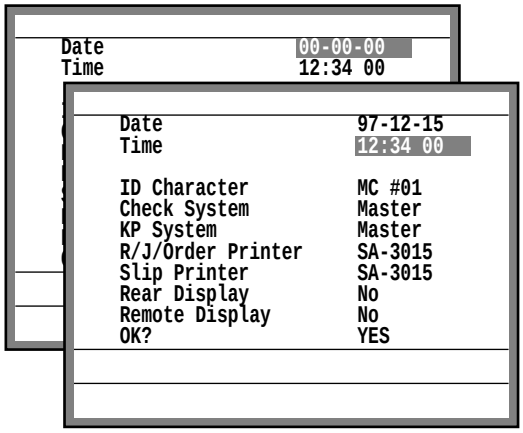
4. INITIALIZE OPERATION

4-1.To initialize QT-2000 terminal

Preparation:

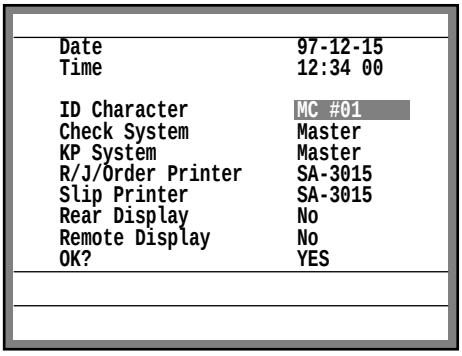
1. All peripheral devices and QT-2000 terminals of this cluster should be turned off.
2. Connect all of the peripheral devices (such as printer, display etc.) to QT-2000 terminal.
3. Connect all QT-2000 terminals by in-line.

Operation:

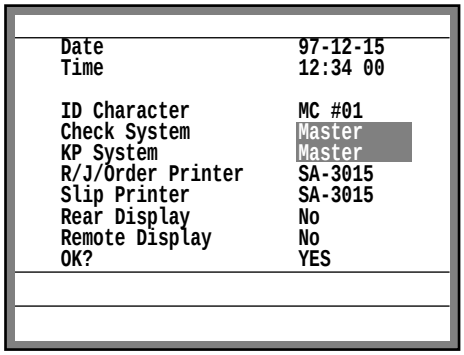


4. Turn on all peripheral devices of a QT-2000 terminal.
5. Turn on this QT-2000 terminal with pressing the left-most key of the top row and release the key after buzzer sounds.
6. After releasing the key, enter 10000 (for Eu/Di)/20000 (U.S.) and press the right part of the <ST> key.

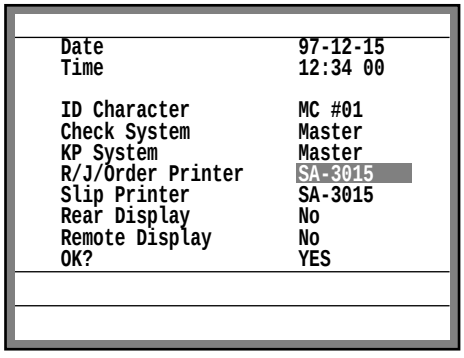
7. Enter the current date (YY/MM/DD order) and time and press the <Yes> key.



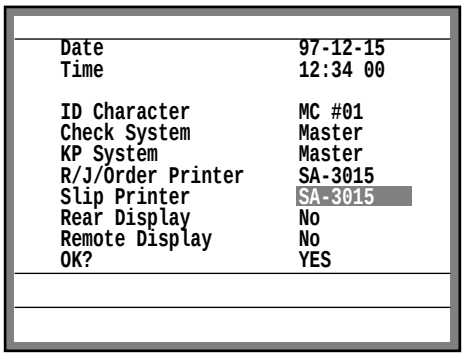
8. In ID character field, the auto-defined ID No. is shown. We recommend that you should not change the value.



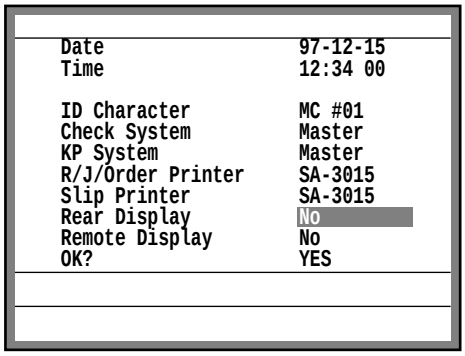
9. In these fields, you can select
"1.Master/2.Backup Master/3.Satellite."
Please select one of these options and press the <Yes> key.

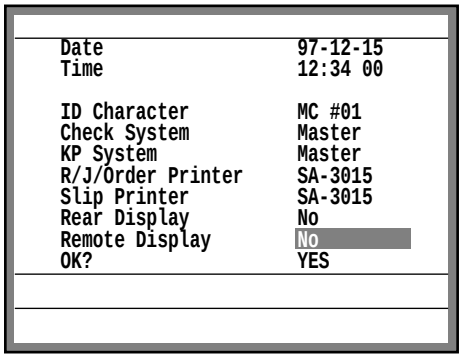


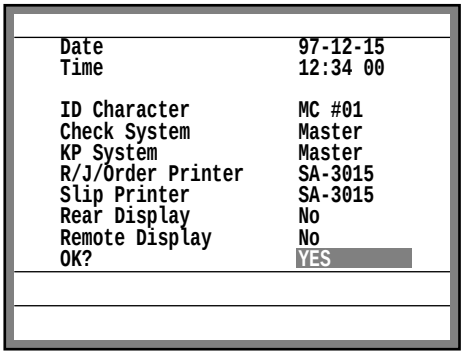
10. In this field, you can select, "1.Non/2.UP-350/3.SA-3015" for R/J/Order printer.
Please select one of these options and press the <Yes> key.



11. In this field, you can select, “1.Non/2.SA-3015/3.SP-1200” for slip printer.
Please select one of these options and press the <Yes> key.

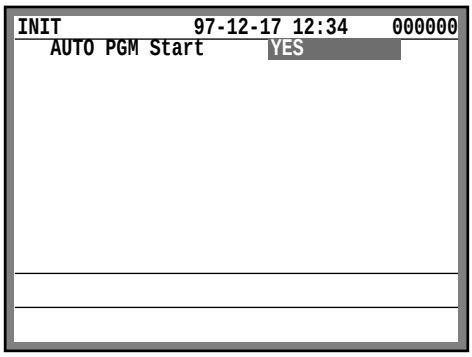






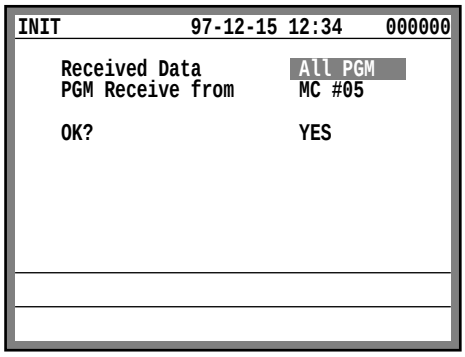
12. In these fields, you can select, “1.Yes/2.No” for rear display and remote display.
Please select one of these options and press the <Yes> key.

13. Please confirm all of the field and if they are all right, press the <Yes> key to proceed the next step.

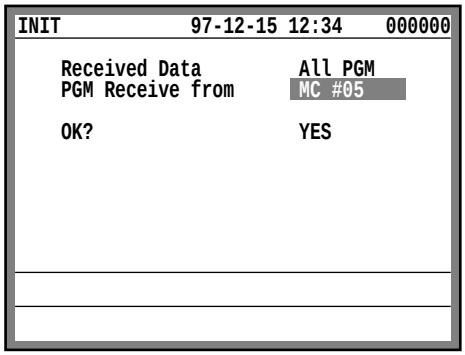


14. If you want to download program data from other terminal, press the <Yes> key and proceed the next step.
If you don't need to download any program data, just press the <No> key (the initialization of this terminal is completed).
Return to step 4 to initialize other terminals.

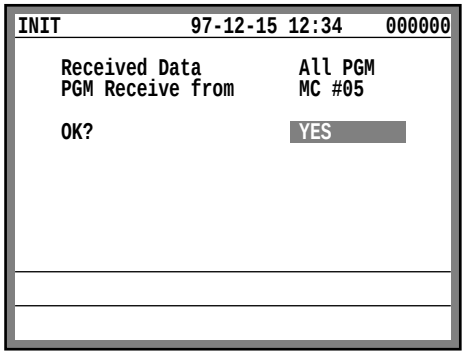
Program copy from other terminal.



15. In this field, you can select the receiving contents as "1.All Data (including totalizer)/2.All PGM (program only)."



16. In this field, you should enter the source ID number of the data and press the <Yes> key.



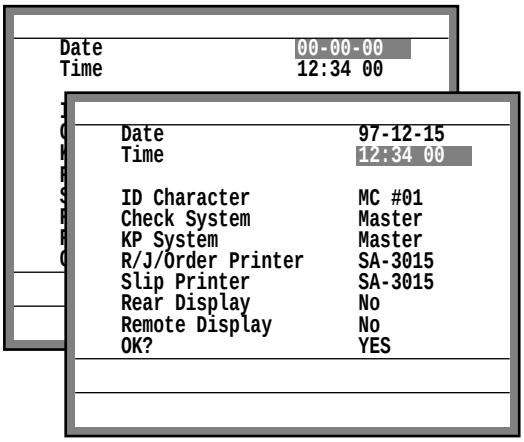
17. Please confirm all of the fields and if they are all right, press the <Yes> key to proceed downloading.
After completion of downloading, return to step 4 to initialize other terminals.

4-2. To initialize QT-2000 terminal (add/replace one QT-2000)

Preparation:

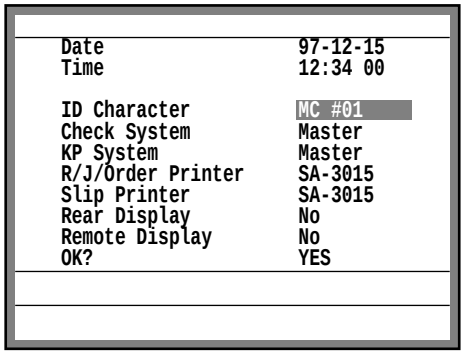
1. All peripheral devices and QT-2000 terminals of this cluster should be turned off.
2. Connect all of the peripheral devices (such as printer, display etc.) to this QT-2000 terminal.
3. Connect this QT-2000 terminal to in-line.

Operation:

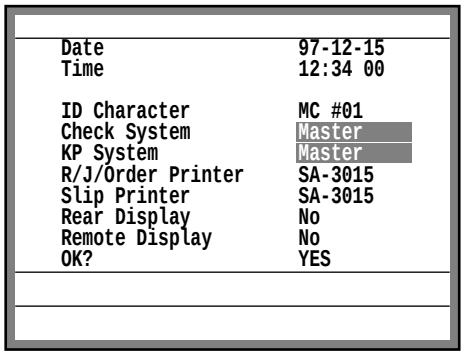


4. Turn on all peripheral devices of this QT-2000 terminal. And turn on all QT-2000 except this terminal of the cluster.
5. Turn on this QT-2000 terminal with pressing the left-most key of the top row and release the key after buzzer sounds.
6. After releasing the key, enter 10000 (for Eu/Di)/20000 (U.S.) and press the right part of the <ST> key.

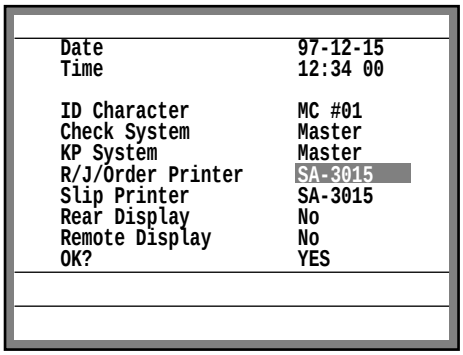
7. Enter the current date (YY/MM/DD order) and time and press the <Yes> key.



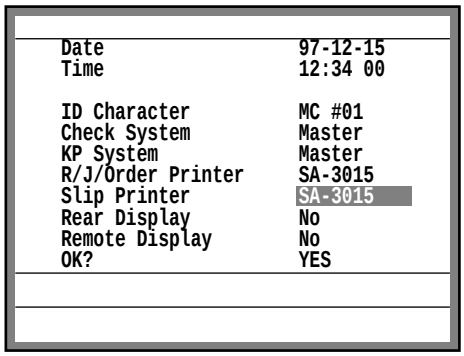
8. In ID character field, the auto-defined ID No. is shown. Please check if the same value is set in this field. We recommend that you should not change the value.



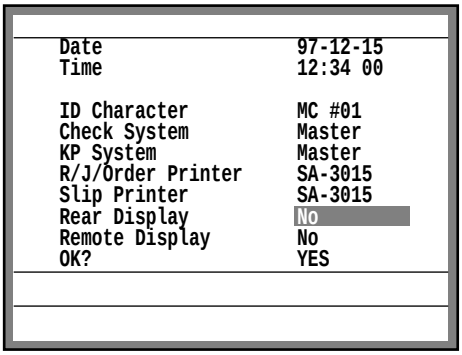
9. In these fields, you can select
"1.Master/2.Backup Master/3.Satellite."
Please choose former options and press the <Yes> key.

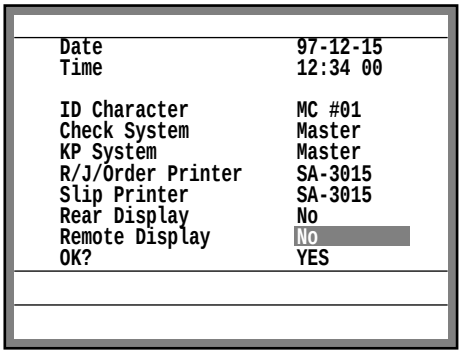


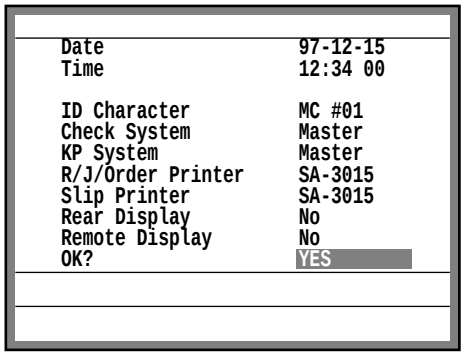
10. In this field, you can select, "1.Non/2.UP-350/3.TM-U950" for R/J/Order printer.
Please choose former option and press the <Yes> key.



11. In this field, you can select, “1.Non/2.SA-3015/3.SP-1200” for slip printer.
Please choose former options and press the <Yes> key.

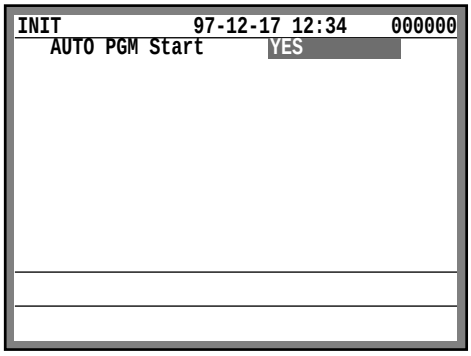






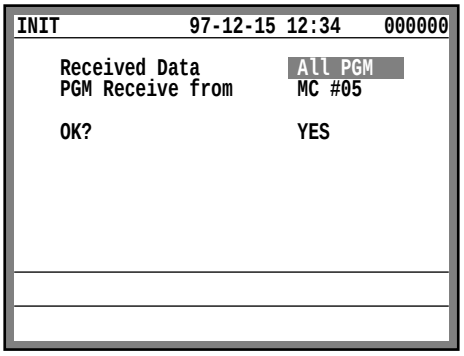
12. In these fields, you can select, “1.Yes/2.No” for rear display and remote display.
Please choose former options and press the <Yes> key.

13. Please confirm all of the field and if they are all right, press the <Yes> key to proceed the next step.

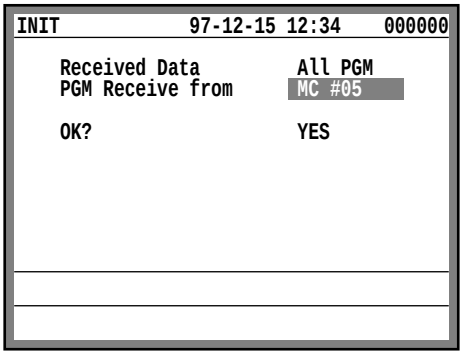


14.If you want to download program dasa from other terminal, press the <Yes> key to proceed the next step.
If you don’t need to download any program data, just press the <No> key (The initialization is completed).

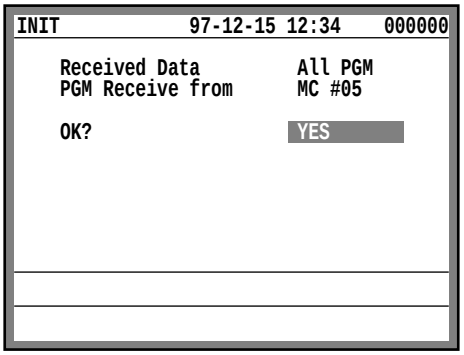
Program copy from other terminal.



15. In this field, you can select the receiving contents as “1.AllData (including totalizer)/2.All PGM (program only).”



16. In this field, you should enter the source ID number of the data and press the <Yes> key.



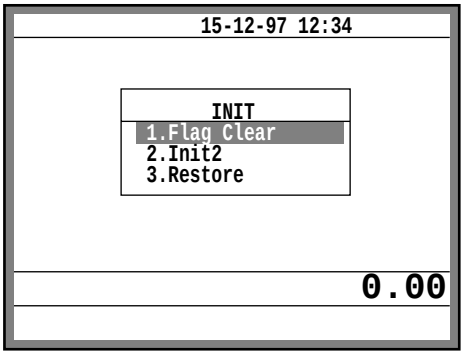
17. Please confirm all of the fields and if they are all right, press the <Yes> key to proceed downloading.
After completion of downloading, the initialization opera-tion is finished.

4-3. To flag clear QT-2000 terminal (INIT2, Restore from flash)

Preparation:

1. All peripheral devices and this QT-2000 terminal should be turned off.
2. Check the connection of all peripheral devices (such as printer, display etc.) of this QT-2000 terminal.
3. Check the connection of this QT-2000 terminal to in-line.

Operation:



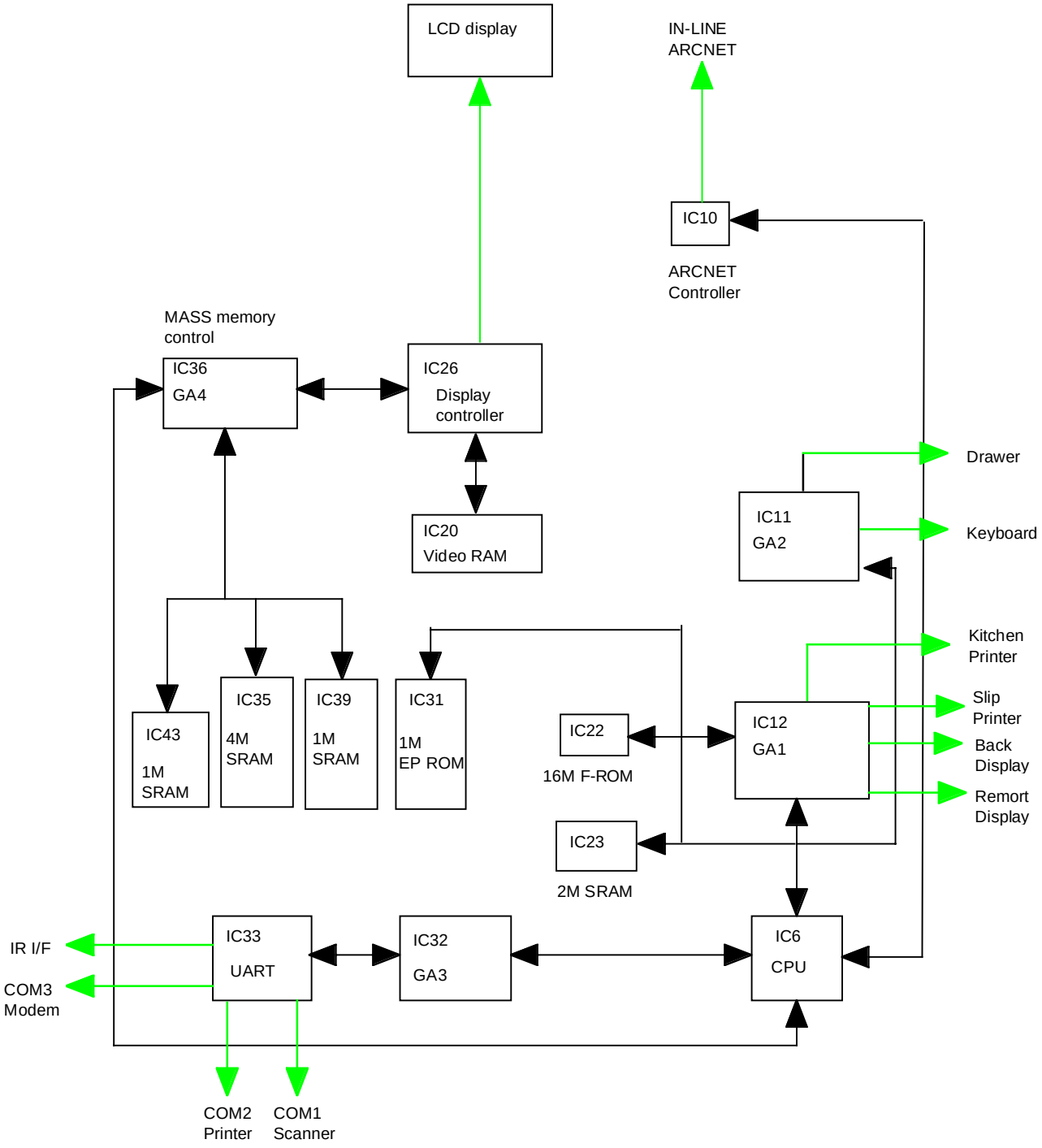
4. Turn on all peripheral devices of this QT-2000 terminal.
5. Turn on this QT-2000 terminal with pressing the right-most key of the top row and release the key after buzzer sounds.
6. After releasing the key, press the right part of the <ST> key.
7. Select "1.Flag Clear" and press the <Yes> key.
The flag clear operation is finished.

Note:

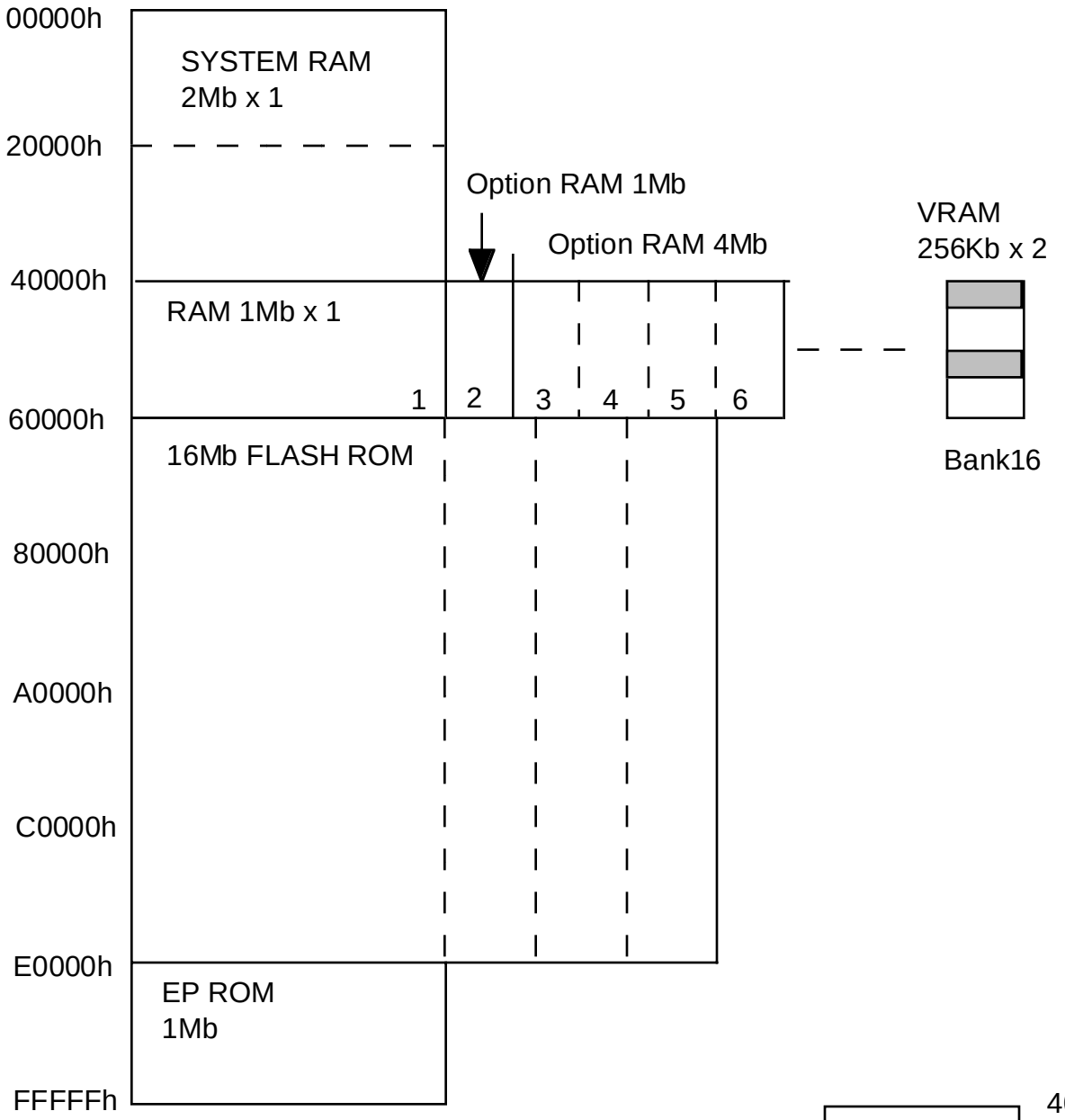
Performing “Init 2” requires password “8888888888” and performing “Restore” requires password “0000000000.”

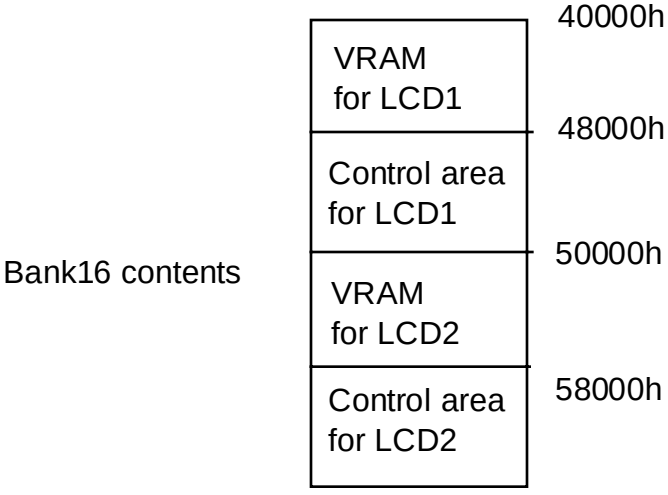
5. CIRCUIT EXPLANATION

5-1. Block diagram (MAIN PCB E580-1)

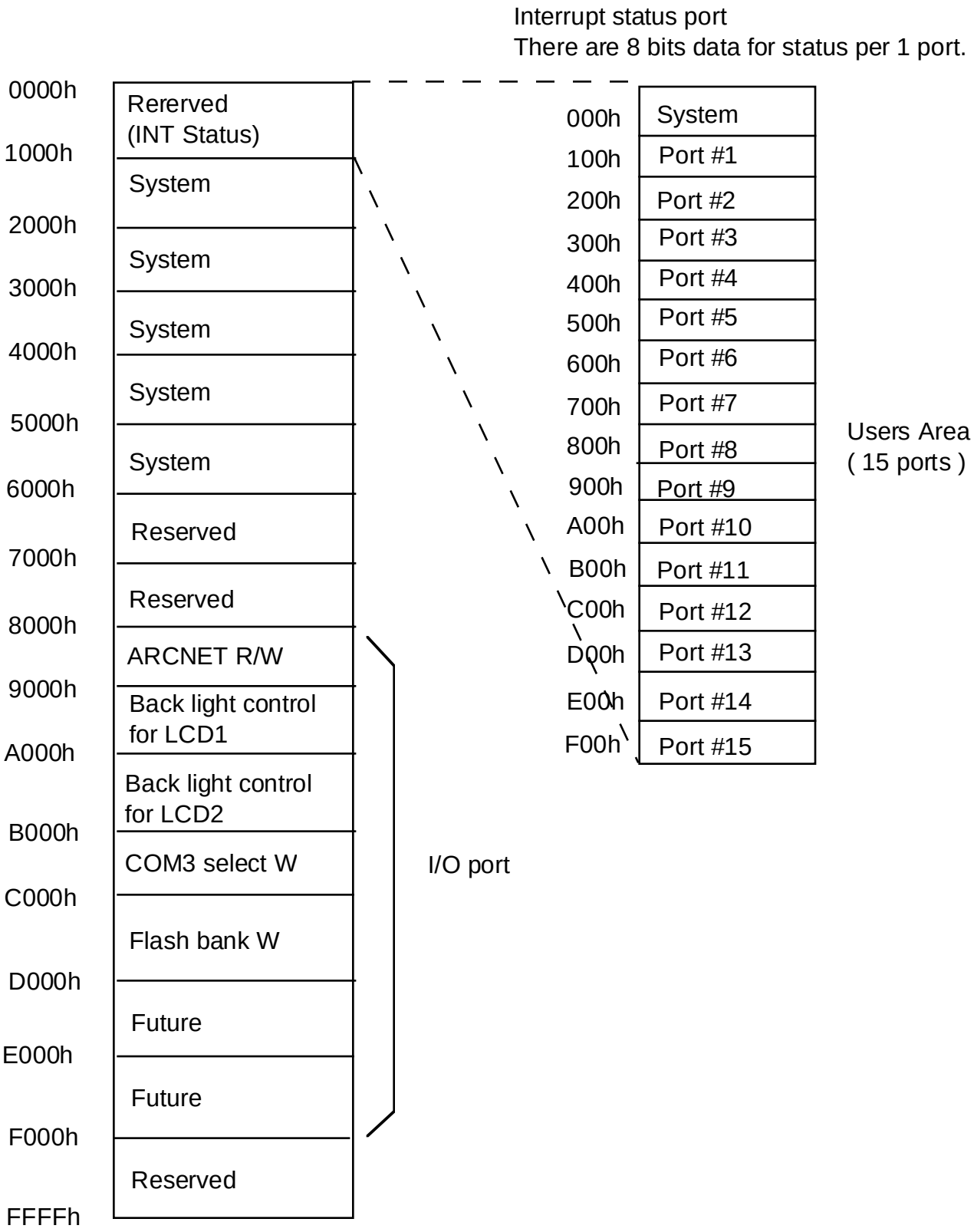


5-2. Memory map





5-3. I/O Address map



5-4. LSI pin description

1. CPU (uPD70108HGC-16-3B6)

Pin No.	Name	Description	In/Out
1	A18/PS2	Address bus (A18) / Processor status	Out
2	A17/PS1	Address bus (A17) / Processor status	Out
3	A16/PS0	Address bus (A16) / Processor status	Out
4	A15	Address bus (A15)	Out
5	VDD	Power source	-
6	VDD	Power source	-
7	GND	GND	-
8	GND	GND	-
9	IC	Internaly connect (GND)	-
10	A14	Address bus (A14)	Out
11	A13	Address bus (A13)	Out
12	A12	Address bus (A12)	Out
13	A11	Address bus (A11)	Out
14	NC	Not used	-
15	A10	Address bus (A10)	Out
16	A9	Address bus (A9)	Out
17	A8	Address bus (A8)	Out
18	AD7	Address / Data bus (AD7)	In/Out
19	AD6	Address / Data bus (AD6)	In/Out
20	AD5	Address / Data bus (AD5)	In/Out
21	AD4	Address / Data bus (AD4)	In/Out
22	AD3	Address / Data bus (AD3)	In/Out
23	AD2	Address / Data bus (AD2)	In/Out
24	AD1	Address / Data bus (AD1)	In/Out
25	AD0	Address / Data bus (AD0)	In/Out
26	NC	Not used	-
27	NC	Not used	-
28	NMI	Non-maskable interrupt (GND)	-
29	INT	Maskable interrupt	In
30	CLK	System clock (16MHz)	In
31	GND	GND	-
32	NC	Not used	-
33	GND	GND	-
34	GND	GND	-
35	RESET	Reset	In
36	READY	Ready signal	In
37	_POLL	Polling signal	In
38	_INTAK	Interrupt acknowedge	Out
39	ASTB	Address strobe	Out
40	NC	Not used	-
41	_BUFEN	Buffer enable	Out
42	BUF_R/W	Buffer read/write enable	Out
43	IO/_M	IO / memory select signal	Out
44	_WR	Write strobe	Out
45	HLDAK	Hold acknowlege	Out
46	NC	Not used	-
47	HLDRQ	Hold request	In
48	_RD	Read strobe	Out
49	S/_LG	Small / Large select (5V)	-
50	LBS0	Not used	-
51	A19/PS3	Address bus (A19) / Processor status	Out
52	NC	Not used	-

2. GA1(MN53040KSF1)

Pin No.	Name	Description	In/Out
1	E49MX2	Sub clock 4.92MHz	Out
2	SVSS	GND	-
3	EADB0	Address bus (EADB0)	Out
4	EADB1	Address bus (EADB1)	Out
5	EADB2	Address bus (EADB2)	Out
6	EADB3	Address bus (EADB3)	Out
7	EADB4	Address bus (EADB4)	Out
8	EADB5	Address bus (EADB5)	Out
9	SVSS	GND	-
10	EADB6	Address bus (EADB6)	Out
11	EADB7	Address bus (EADB7)	Out
12	EADB8	Address bus (EADB8)	Out
13	EADB9	Address bus (EADB9)	Out
14	EADB10	Address bus (EADB10)	Out
15	VDD	VCC	In
16	EADB11	Address bus (EADB11)	Out
17	VSS	GND	-
18	EADB12	Address bus (EADB12)	Out
19	EADB13	Address bus (EADB13)	Out
20	EADB14	Address bus (EADB14)	Out
21	EADB15	Address bus (EADB15)	Out
22	EADB16	Address bus (EADB16)	Out
23	SVSS	GND	-
24	EROMDC	Direction select signal	Out
25	_EMRD	Output enable signal for system RAM	Out
26	_EXINT	Interruput signal from GA2,3,4	In
27	_EMWR	Memory write signal	Out
28	_ECGA2	Chip select signal for GA2	Out
29	_ERSET	Reset signal	In
30	_ECRA0	Bank select signal for RAM	Out
31	_ECRA1	Bank select signal for RAM	Out
32	_ECRA2	Bank select signal for RAM	Out
33	_ECRA3	Bank select signal for RAM	Out
34	EADB17	Address bus (EADB17)	Out
35	EADB18	Address bus (EADB18)	Out
36	EADB19	Not used	-
37	E1MN4M	VCC	In
38	_ECR04	Chip enable for ROM	Out
39	_ECR03	Chip enable for FROM	Out
40	_ECR02	Chip enable for FROM	Out
41	_ECR01	Chip enable for FROM	Out
42	_ECR00	Chip enable for FROM	Out
43	_EIREQ	VCC	In
44	EIASTB	GND	In
45	EIHDAK	GND	In
46	VSS	GND	-
47	_EIACK	Not used	Out
48	VDD	VCC	In
49	EIHDRQ	Not used	Out
50	EAD0	Address / Data bus (AD0)	In/Out

Pin No.	Name	Description	In/Out
51	EAD1	Address / Data bus (AD1)	In/Out
52	EAD2	Address / Data bus (AD2)	In/Out
53	EAD3	Address / Data bus (AD3)	In/Out
54	EAD4	Address / Data bus (AD4)	In/Out
55	EAD5	Address / Data bus (AD5)	In/Out
56	SVSS	GND	-
57	EAD6	Address / Data bus (AD6)	In/Out
58	EAD7	Address / Data bus (AD7)	In/Out
59	EA8	Address bus (A8)	In
60	EA9	Address bus (A9)	In
61	EA10	Address bus (A10)	In
62	EA11	Address bus (A11)	In
63	EA12	Address bus (A12)	In
64	EA13	Address bus (A13)	In
65	EA14	Address bus (A14)	In
66	EA15	Address bus (A15)	In
67	ECPURS	Reset signal	Out
68	EREADY	Ready signal	Out
69	EA16	Address bus (A16)	In
70	EA17	Address bus (A17)	In
71	EA18	Address bus (A18)	In
72	EA19	Address bus (A19)	In
73	_EINTA	Interrupt acknowledge signal from CPU	In
74	EASTB	Address strobe signal	In
75	EINT	Interrupt signal to CPU	Out
76	EINMCK	IO / Memory select signal	Out
77	VSS	GND	-
78	_EINSD	Not used	Out
79	VDD	VCC	In
80	_EINRD	VCC	In
81	ESDEND	Not used	Out
82	_EKPSD	Send data to kitchen printer	Out
83	_EKPRD	Receive data from kitchen printer	In
84	EKPEND	RTS signal for kitchen printer	Out
85	ESD	Send data for COM1	Out
86	ERD	Receive data for COM1	In
87	_ECI	VCC	In
88	_EDR	DSR signal for COM1	In
89	_EER	DTR signal for COM1	Out
90	_ECD	VCC	In
91	_ECS	CTS signal for COM1	In
92	_ERS	RTS signal for COM1	Out
93	E16MX1	Main system clock 16MHz	In
94	E16MX2	Main system clock 16MHz	Out
95	SVSS	GND	-
96	ECPURC	CLock signal from CPU	In
97	ECPUCK	CLock signal from CPU	Out
98	_FBFEN	Buffer enable signal	In
99	TEST2	GND	In
100	EIONM	IO / Memory selection signal from CPU	In

Pin No.	Name	Description	In/Out
101	EWR	Write strobe signal from CPU	In
102	EHLADK	Hold acknowledge signal from CPU	In
103	EHLDRQ	Hold request signal to CPU	Out
104	_ERD	Read signal	In
105	_E1WT	VCC	In
106	_E2WT	VCC	In
107	_EDCR1	Data clear signal for back display	Out
108	VDD	VCC	In
109	_EDNK1	Data NACK signal for back display	In
110	VSS	GND	-
111	EDDDAT	Data signal for back display	Out
112	EDDCLK	Clock signal for back display	Out
113	_EDNK2	Data NACK signal for remort display	In
114	_EDCR2	Data clear signal for remort display	Out
115	ESPBSY	Busy signal for slip printer	In
116	_ESPNK	NACK signal for slip printer	In
117	ESLPCR	Data clear signal for slip printer	Out
118	EPRDAT	Data signal for slip printer	Out
119	EPRCLK	Clock signal for slip printer	Out
120	ERJBSY	GND	In
121	_ERJNK	Interrupt signal from ARCNET controller	In
122	_ERJCR	Not used	Out
123	TEST1	GND	In
124	E49MX1	Sub system clock 4.91MHz	In

3. GA2 (MN53020KSK)

Pin No.	Name	Description	In/Out
1	VSS	GND	-
2	XO	Clock signal	Out
3	_K13	Key input data signal (K13)	In
4	_K12	Key input data signal (K12)	In
5	_K11	Key input data signal (K11)	In
6	_K10	Key input data signal (K10)	In
7	_K9	Key input data signal (K9)	In
8	_K8	Key input data signal (K8)	In
9	_K7	Key input data signal (K7)	In
10	_K6	Key input data signal (K6)	In
11	_K5	Key input data signal (K5)	In
12	_K4	Key input data signal (K4)	In
13	_K3	Key input data signal (K3)	In
14	_K2	Key input data signal (K2)	In
15	_K1	Key input data signal (K1)	In
16	_K0	Key input data signal (K0)	In
17	_KO11	Key common signal (KO11)	Out
18	_KO10	Key common signal (KO10)	Out
19	_KO9	Key common signal (KO9)	Out
20	_KO8	Key common signal (KO8)	Out

Pin No.	Name	Description	In/Out
21	_KO7	Key common signal (KO7)	Out
22	_KO6	Key common signal (KO6)	Out
23	_KO5	Key common signal (KO5)	Out
24	_KO4	Key common signal (KO4)	Out
25	_KO3	Key common signal (KO3)	Out
26	VSS	GND	-
27	_KO2	Key common signal (KO2)	Out
28	_KO1	Key common signal (KO1)	Out
29	_KO0	Key common signal (KO0)	Out
30	_INTPWD	Power down signal	In
31	AD7	Address / Data bus (AD7)	In/Out
32	AD6	Address / Data bus (AD6)	In/Out
33	AD5	Address / Data bus (AD5)	In/Out
34	AD4	Address / Data bus (AD4)	In/Out
35	AD3	Address / Data bus (AD3)	In/Out
36	AD2	Address / Data bus (AD2)	In/Out
37	VSS	GND	-
38	AD1	Address / Data bus (AD1)	In/Out
39	VDD	VDD	In
40	AD0	Address / Data bus (AD0)	In/Out
41	_CRAM0	Chip select signal for system RAM	Out
42	_CRAM1	Chip select signal for system RAM	Out
43	_CRAM2	Nit used	Out
44	CPUCLK	Clock signal from CPU	In
45	ASTB	Address strobe signal from CPU	In
46	_WR	Write signal from CPU	In
47	_RD	Read signal from CPU	In
48	ICEASTB	GND	In
49	_RAM3	Bank select signal	In
50	NC	Not used	-
51	VSS	GND	-
52	_CRAM3	Not used	Out
53	_RAM2	Bank select signal for RAM	In
54	_RAM1	Bank select signal for RAM	In
55	_RAM0	Bank select signal for RAM	In
56	_RESET	Reset signal	Out
57	_CSGA2	Chip select signal	In
58	_MEMWR	Memory write signal	In
59	_INT	Initilize signal	Out
60	_REFRESH	Not used	Out
61	_MEMWRT	Not used	Out
62	RFSEL	VCC	In
63	ITEST2	GND	In
64	ITEST1	GND	In
65	DIP8	Not used	In
66	DIP7	Not used	In
67	CASHSW6	Clerk switch signal	In
68	CASHSW5	Clerk switch signal	In
69	CASHSW4	Clerk switch signal	In
70	CASHSW3	Clerk switch signal	In

Pin No.	Name	Description	In/Out
71	CASHSW2	Clerk switch signal	In
72	CASHSW1	Clerk switch signal	In
73	_SLIPSEN	Sensor signal from slip printer	In
74	OBRCLK	Not used	Out
75	OBRDATA	VCC	In
76	VSS	GND	-
77	_DR4	Not used	Out
78	_DR3	Not used	Out
79	_DR2	Drawer open signal (DR2)	Out
80	_DR1	Drawer open signal (DR1)	Out
81	DRS	Drawer sensor signal	In
82	TAIWANJ	GND	In
83	TAIWANR	GND	In
84	VLDSEN	GND	In
85	JPEND	GND	In
86	_PWON	Not used	Out
87	VDD	VDD	In
88	BUZER	Buzzer signal	Out
89	VSS	GND	-
90	OFF	GND	In
91	PGM	GND	In
92	RF	GND	In
93	REG1	GND	In
94	REG2	GND	In
95	X	Sheet select switch signal	In
96	Z	Sheet select switch signal	In
97	XZ2	Sheet select switch signal	In
98	_NACK	Not used	Out
99	XI	Clock signal	In
100	NC	Not used	-

4. GA3 (MN53020KSG)

Pin No.	Name	Description	In/Out
1	VSS	GND	-
2	XO	Clock signal	Out
3	SVDD	VCC	In
4	_CLOCK	Not used	Out
5	_ENABLE	Not used	Out
6	WMF1	GND	In
7	WMF2	GND	In
8	WMF3	GND	In
9	WMF4	GND	In
10	WMF5	GND	In
11	WMF6	GND	In
12	WMF7	GND	In
13	WMF8	GND	In
14	WMF9	GND	In
15	_CLD2	Card loading signal	In
16	_RCL2	Data sampling clock	In
17	_RDT2	Data signal	In
18	_CLD1	Card loading signal	In
19	_RCL1	Data sampling clock	In
20	_RDT1	Data signal	In
21	_RESET	Reset signal	In
22	ASTB	Address strobe signal	In
23	_BUFEN	Buffer enable signal	In
24	BUFNRW	Buffer read/write signal	In
25	_WR	Write signal	In
26	VSS	GND	-
27	INT	Initilize signal	Out
28	AD0	Address / Data bus (AD0)	In/Out
29	AD1	Address / Data bus (AD1)	In/Out
30	AD2	Address / Data bus (AD2)	In/Out
31	AD3	Address / Data bus (AD3)	In/Out
32	SVSS	GND	-
33	AD4	Address / Data bus (AD4)	In/Out
34	AD5	Address / Data bus (AD5)	In/Out
35	AD6	Address / Data bus (AD6)	In/Out
36	AD7	Address / Data bus (AD7)	In/Out
37	VSS	GND	-
38	AB8	Address signal (A8)	In
39	VDD	VCC	In
40	AB9	Adress signal (A9)	In
41	AB10	Adress signal (A10)	In
42	AB11	Adress signal (A11)	In
43	AB12	Adress signal (A12)	In
44	AB13	Adress signal (A13)	In
45	AB14	Adress signal (A14)	In
46	AB15	Adress signal (A15)	In
47	_RD	Read signal	In
48	ICEASTB	GND	In
49	IOM	IO/Memory select signal	In
50	NC	Not used	-

Pin No.	Name	Description	In/Out
51	VSS	GND	-
52	USD0	Data bus for USART (USD0)	In/Out
53	USD1	Data bus for USART (USD1)	In/Out
54	USD2	Data bus for USART (USD2)	In/Out
55	USD3	Data bus for USART (USD3)	In/Out
56	USD4	Data bus for USART (USD4)	In/Out
57	USD5	Data bus for USART (USD5)	In/Out
58	SVSS	GND	-
59	USD6	Data bus for USART (USD6)	In/Out
60	USD7	Data bus for USART (USD7)	In/Out
61	TOUT	Not used	Out
62	CLK	Clock signal for USART	Out
63	ADB0	Not used	Out
64	_RXC1	Not used	Out
65	TXRDY1	Ready signal for IrDA or Com3	In
66	RXRDY1	GND	In
67	_USART1	CH1 select signal for USART	Out
68	_TXC1	Send clock signal for CH1	Out
69	_RXC2	Not used	Out
70	TXRDY2	Ready signal for Com2	In
71	RXRDY2	GND	In
72	_USART2	CH2 select signal for USART	Out
73	_TXC2	Not used	Out
74	_ST2	VCC	In
75	_RT	VCC	In
76	VSS	GND	-
77	_CD	VCC	In
78	_CI	VCC	In
79	T3	GND	In
80	SELECT	GND	In
81	PEND	GND	In
82	_FAULT	VCC	In
83	BUSY	GND	In
84	NACK	VCC	In
85	CENTD7	Not used	Out
86	CENTD8	Not used	Out
87	VDD	VCC	In
88	CENTD6	Not used	Out
89	VSS	GND	-
90	CENTD4	Not used	Out
91	CENTD5	Not used	Out
92	CENTD3	Not used	Out
93	CENTD2	Not used	Out
94	CENTD1	Not used	Out
95	_STROBE	Not used	Out
96	_INT	Not used	Out
97	T2	GND	In
98	T1	GND	In
99	XIN	Clock signal	In
100	NC	Not used	-

5. GA4 (MN56020KSJ)

Pin No.	Name	Description	In/Out
1	VSS	GND	-
2	MD2	Data signal for MASS memory (MD2)	In / Out
3	MD3	Data signal for MASS memory (MD3)	In / Out
4	MD4	Data signal for MASS memory (MD4)	In / Out
5	MD5	Data signal for MASS memory (MD5)	In / Out
6	MD6	Data signal for MASS memory (MD6)	In / Out
7	MD7	Data signal for MASS memory (MD7)	In / Out
8	SVSS	GND	-
9	MA0	Address signal for MASS memory (MA0)	Out
10	MA1	Address signal for MASS memory (MA1)	Out
11	MA2	Address signal for MASS memory (MA2)	Out
12	MA3	Address signal for MASS memory (MA3)	Out
13	MA4	Address signal for MASS memory (MA4)	Out
14	MA5	Address signal for MASS memory (MA5)	Out
15	SVSS	GND	-
16	MA6	Address signal for MASS memory (MA6)	Out
17	MA7	Address signal for MASS memory (MA7)	Out
18	MA8	Address signal for MASS memory (MA8)	Out
19	MA9	Address signal for MASS memory (MA9)	Out
20	SVSS	GND	-
21	MA10	Address signal for MASS memory (MA10)	Out
22	MA11	Address signal for MASS memory (MA11)	Out
23	MA12	Address signal for MASS memory (MA12)	Out
24	MA13	Address signal for MASS memory (MA13)	Out
25	VSS	GND	-
26	MA14	Address signal for MASS memory (MA14)	Out
27	MA15	Address signal for MASS memory (MA15)	Out
28	MA16	Address signal for MASS memory (MA16)	Out
29	_INT	Initilize signal	Out
30	_RESET	Reset signal	In
31	AB19	Address bus (AB19)	In
32	AB18	Address bus (AB18)	In
33	AB17	Address bus (AB17)	In
34	AB16	Address bus (AB16)	In
35	AB15	Address bus (AB15)	In
36	AB14	Address bus (AB14)	In
37	VSSI	GND	-
38	AB13	Address bus (AB13)	In
39	AB12	Address bus (AB12)	In
40	AB11	Address bus (AB11)	In
41	AB10	Address bus (AB10)	In
42	AB9	Address bus (AB9)	In
43	AB8	Address bus (AB8)	In
44	AD7	Address / Data bus (AD7)	In / Out
45	AD6	Address / Data bus (AD6)	In / Out
46	AD5	Address / Data bus (AD5)	In / Out
47	AD4	Address / Data bus (AD4)	In / Out
48	AD3	Address / Data bus (AD3)	In / Out
49	AD2	Address / Data bus (AD2)	In / Out
50	VDD	VCC	In

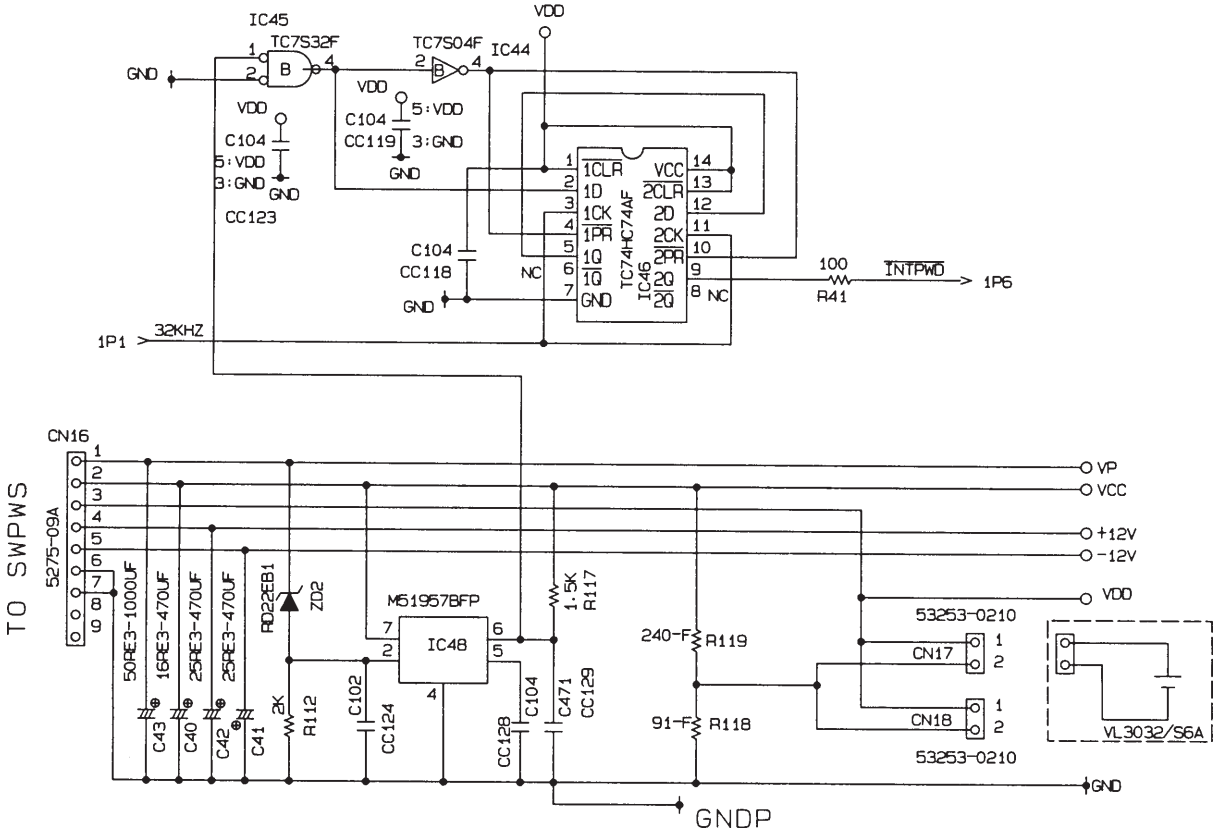
Pin No.	Name	Description	In/Out
51	VSS	GND	-
52	AD1	Address / Data bus (AD1)	In /Out
53	AD0	Address / Data bus (AD0)	In / Out
54	_RFSHOT	Not used	Out
55	ASTB	Address strobe signal	In
56	IOXM	IO / Memory select signal	In
57	BUFXRW	Buffer read/write signal	In
58	CPUCLK	Clock signal from CPU	In
59	_BUFEN	Buffer enable signal	In
60	_WR	Write signal	In
61	_RD	Read signal	In
62	_RFSH	GND	In
63	ICEAST	GND	In
64	TEST	GND	In
65	RW1	Memory write enable signal	Out
66	RW2	Not used	Out
67	_OE1	Memory output enable signal	Out
68	_OE2	Not used	Out
69	_CE0	Chip enable for MASS memory	Out
70	_CE1	Chip enable for MASS memory	Out
71	_CE2	Chip enable for MASS memory	Out
72	_CE3	Chip enable for MASS memory	Out
73	_CE4	Chip enable for MASS memory	Out
74	_CE5	Chip enable for MASS memory	Out
75	VSS	GND	-
76	_CE6	Chip enable signal (Not used)	-
77	_CE7	Chip enable signal (Not used)	-
78	_CE8	Chip enable signal (Not used)	-
79	_CE9	Chip enable signal (Not used)	-
80	_CE10	Chip enable signal (Not used)	-
81	_CE11	Chip enable signal (Not used)	-
82	_CE12	Chip enable signal (Not used)	-
83	_CE13	Chip enable signal (Not used)	-
84	_CE14	Not used	-
85	_CE15	Chip select signal for LCD display	Out
86	LS0	GND	In
87	VDDI	VCC	In
88	LS1	VCC	In
89	LS2	GND	In
90	IOLS0	GND	In
91	IOLS1	GND	In
92	IOLS2	GND	In
93	IOLS3	GND	In
94	SELECT	GND	In
95	_INTIN	VCC	In
96	CEIN	GND	In
97	CEOT	Not used	Out
98	MD0	Data signal for MASS memory (MD0)	In / Out
99	MD1	Data signal for MASS memory (MD1)	In / Out
100	VDD	VCC	In

6. NETWORK DRIVER (COM20020BILJP)

Pin No.	Name	In/Out	Status of OFF	Status of ON No Token	Status of ON Token	Description
1 2 3	A0/$\overline{MUX}$ A1 A2/ALE	In In In	L L L	L L L	Pulse L L	Input. On a non-multiplexed bus, these signals are dirctly connectoed to the low bits of the host address bus. On a multiplexed address/data bus, A0/MUX is tied low, A1 is left open, and A2 is tied to the address latch enable signal of the host. A1 is connectoed to an internal pull-up resistor.
4 5 6 8 9 10 11 12	AD0 AD1 AD2 D3 D4 D5 D6 D7	In/Out In/Out In/Out In/Out In/Out In/Out In/Out In/Out	L L L L L L L L	Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse	Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse	Input/Output. On a non-multiplexed bus, these signals are used as the data lines for the device. On a multiplexed address/data bus, AD0~AD2 act as the address lines (latched by ALE) and as the low data lines for the device. D3~D7 are always used for data only. These signals are connected to internal pull-up resistors.
7,12,14	GND	Power	GND	GND	GND	Signal ground.
16 17	XTAL1 XTAL2	In In	L L	Pulse Pulse	Pulse Pulse	An external crystal shoul be connected to these pins. If an external TTL clock is used instead, it must be connected to XTAL1 with a 390 ohms pull-up resistor, and XTAL2 should be left floating.
18 19	$\overline{PULSE1}$ $\overline{PULSE2}$	Out Out	L L	H L	Pulse L	Output. In normal mode, these active low signals carry the transmit data information, encoded in pulse format, from the COM20020 to the media driver circuitry. When the device is in backplane mode, the PULSE1 signal driver is programmable (push/pull or open-drain), while the PULSE2 signal provides a clock with frequency of crystal/4. PULSE1 is connected to a week internal pull-up resistor in backplane mode.
20	RXIN	In	L	H	Pulse	Receive input. This signal carries the receive data information from the line receiver circuitry to the COM20020.
21	$\overline{TXEN}$	Out	L	L	Pulse	Transmit Enable output. This signal used in backplane mode to enable the line drivers for transmission. The polarity of the signal is programmable by grounding the PULSE2 pin. This option is valid only in backplane mode.
23	$\overline{RESET\ IN}$	In	L	H	H	Input. This active low signal issued by the microcontroller executes a hard-ware reset. It is used to activate the internal reset circuitry within the COM20020.

Pin No.	Name	In/Out	Status of OFF	Status of ON No token	Status of ON Token	Description
24	$\overline{INTR}$	Out	L	H	Pulse	Interrupt output. This active low signal is generated by the COM20020 when an enabled interrupt condition occurs. INTR returns to its inactive state when the interrupt status condition or the corresponding interrupt mask bit is reset.
25	$\overline{CS}$	In	L	H	Pulse	Chip select input. This active low signal issued by the microcontroller selects the COM20020 for an access.
26	$\overline{WR}$/DIR	In	L	Pulse	Pulse	Input. On a 68XX-like bus, this signal is issued by the microcontroller as the Read/Write signal to determine the direction of data transfer. In this case, a logic "1" selects a read operation, while a logic "0" selects a write operation. In this case, data is actually strobed by the DS signal. On an 80XX-like bus, this active low signal is isuued by the microcontroller to indicate a write operation. in this case, a logic "0" on this pin, when the COM20020 is accessed, enables data from the data bus to be written to the device.
27	$\overline{RD}$/$\overline{DS}$	In	L	L	Pulse	Read/ Data strobe signal input. On a 68XX-like bus, this active low signal is issued by the microcontroller as the data strobe signal to strobe the data onto the bus. On a 80XX-like bus, this active low signal is issued by the microcontroller to indicate a read operation. In this case, a logic "0" on this pin, when the COM20020 is accessed, enables data from the device to the data bus to be read by the microcontroller.
15,18	VCC	Power	GND	+5V	+5V	Power supply +5V.

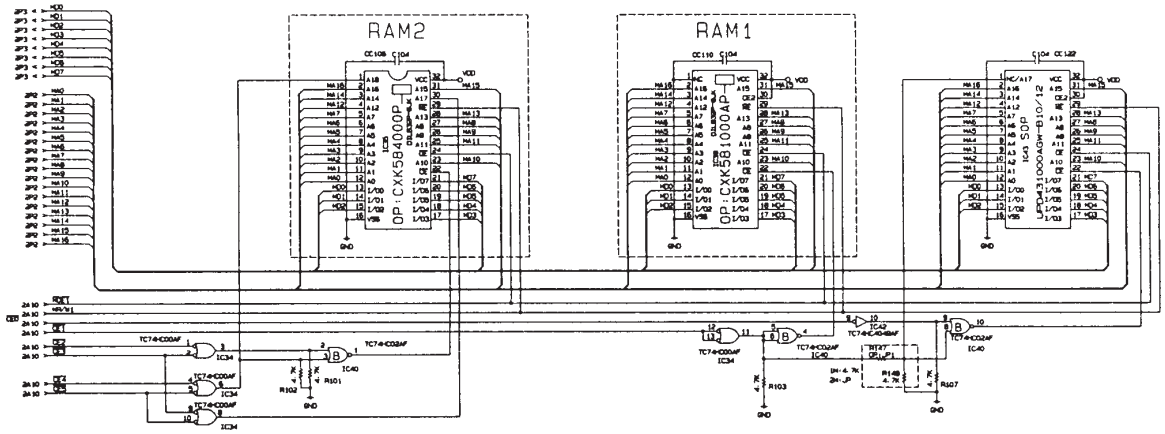
5-5. Power down detection circuit



IC48 : Detection IC

The power is supplied at CN16 from switching power supply unit.
When the VP voltage become more than 22V, the voltage appears at pin No.2 of IC48 through the zener diode ZD2.
The detection IC outputs "High" signal from pin No.6 and its signal going to IC45.
Then, the signal "INTPWD" becomes "High" and going to GA2.
The GA2 outputs "Reset" signal and reset the all GAs.

5-6. Option RAM circuit



Standard memory capacity : 384 KB

To expand the memory capacity, put the option RAM chip on RAM1 or RAM2 position
Its convination is as follows;

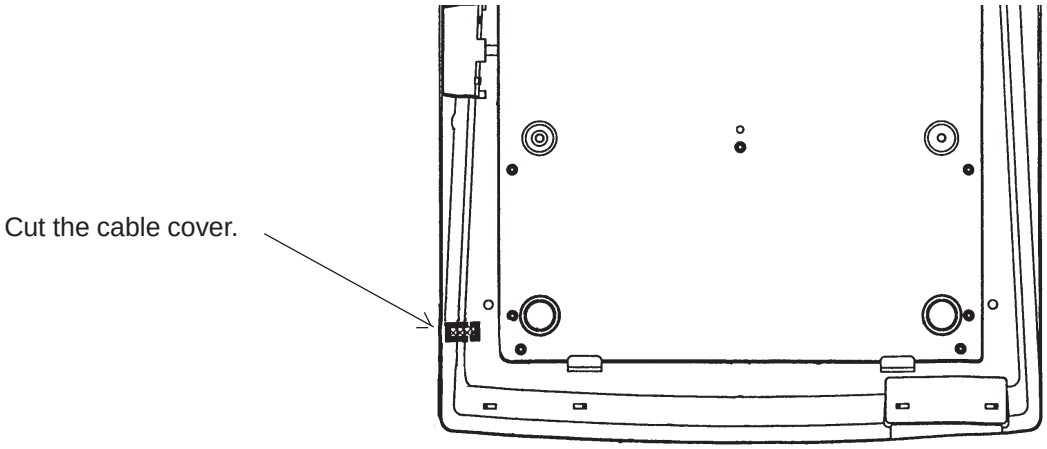
Memory capacity	Standard	RAM1 (Location : IC39)	RAM2 (Location : IC35)
384KB	384KB	Nil	Nil
512KB	384KB	RAM530	Nil
1MB	384KB	RAM530	RAM610

RAM530 : 1Mbits RAM (CXK581000P-10L)
RAM610 : 4Mbits RAM (CXK584000P-10LL)

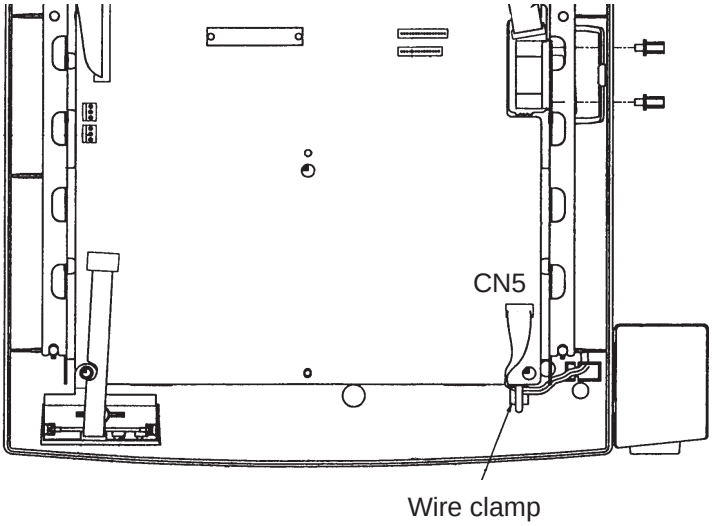
6. OPTION INSTALLATION

6-1. Clerk key unit (CLK-K17,CLK-K18)

1. Cut off the cable cover from the bottom case.
2. Release the screw which is fixing the keyboard and take tke keyboard out.

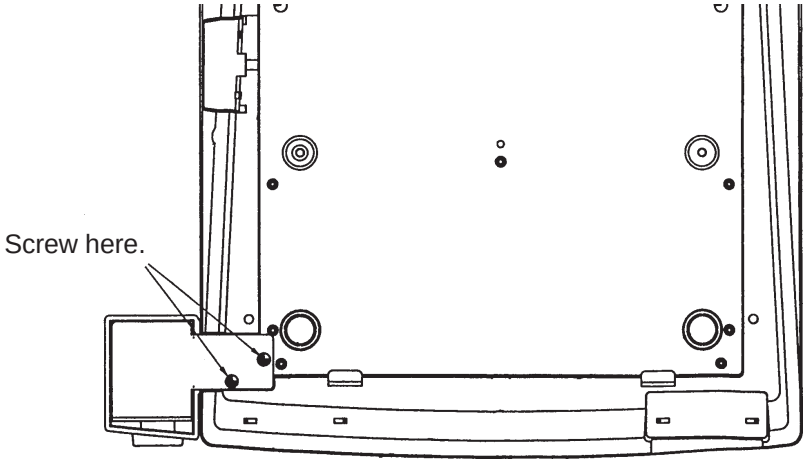


3. Insart the cable of clerk key unit and connect to CN5 of Main PCB.



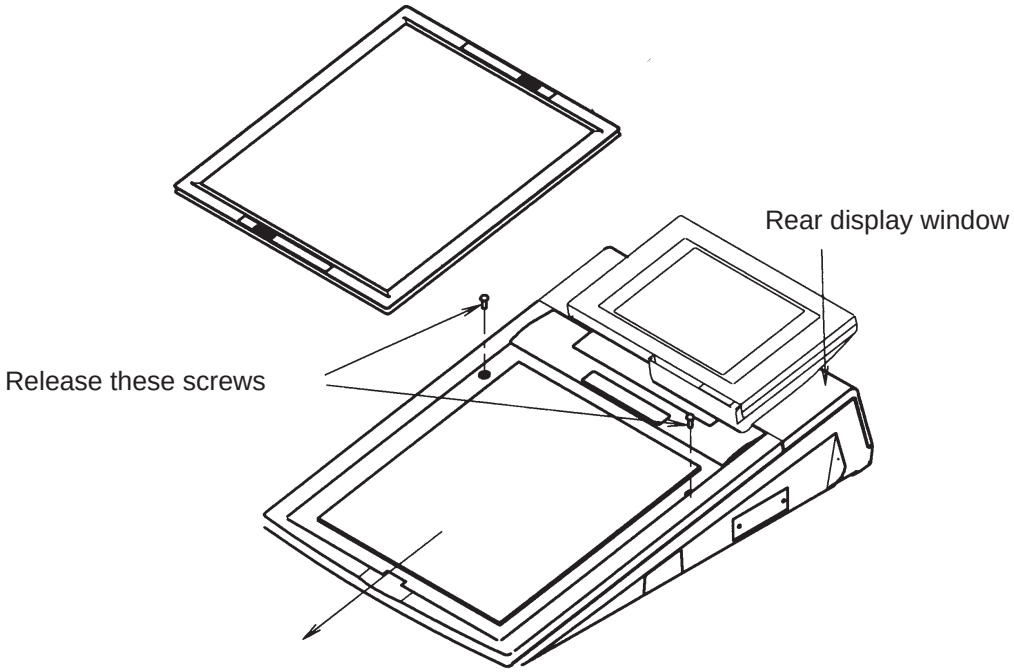
Note :
Hold the cable using a wire clamp to prevent the cut of wire.

4. Tighten the screw to mount the clerk key unit.



6-2. Rear Display (QT-2060D)

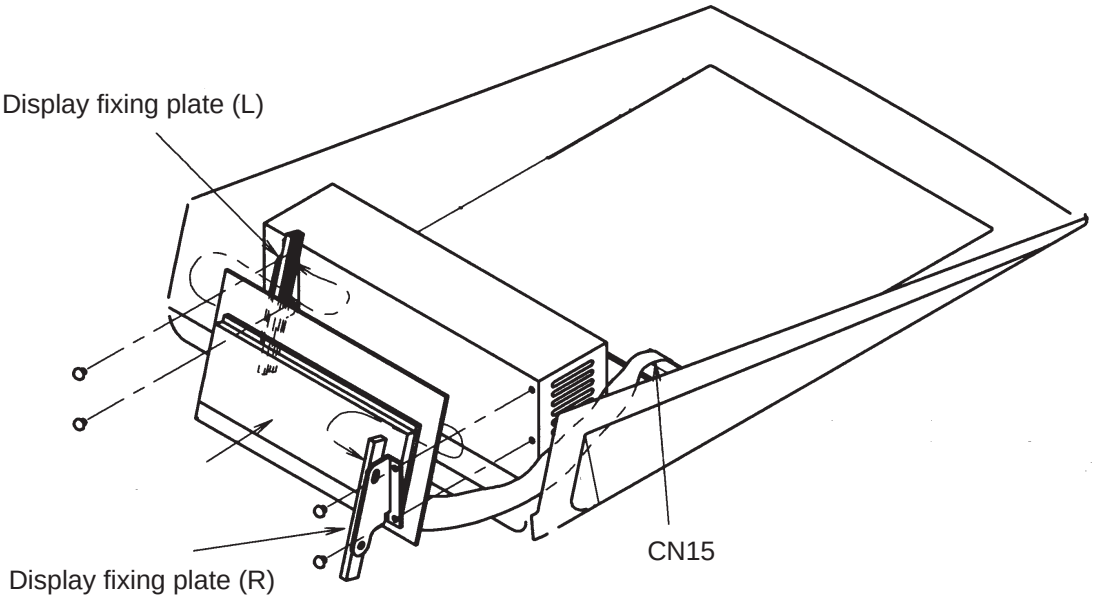
1. Release the screw which is fixing the keyboard and take tke keyboard out.
2. Remove the rear display window.



Slide the keyboard to the allow direction

3. Mount the display fixing plate (L).
4. Set the display PCB and display fixing plate (R), then tighten the screw.
5. Connect the display cable to CN15 of Main PCB.

Note : FG wire of the power code does not set behind displat PCB.
In case the FG wire is set behind the display PCB,the display might occurred flickering problem.

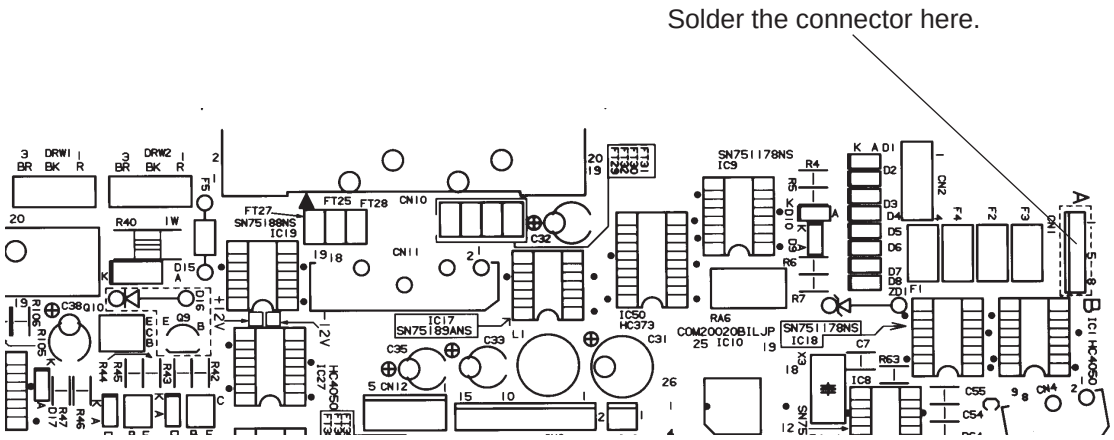


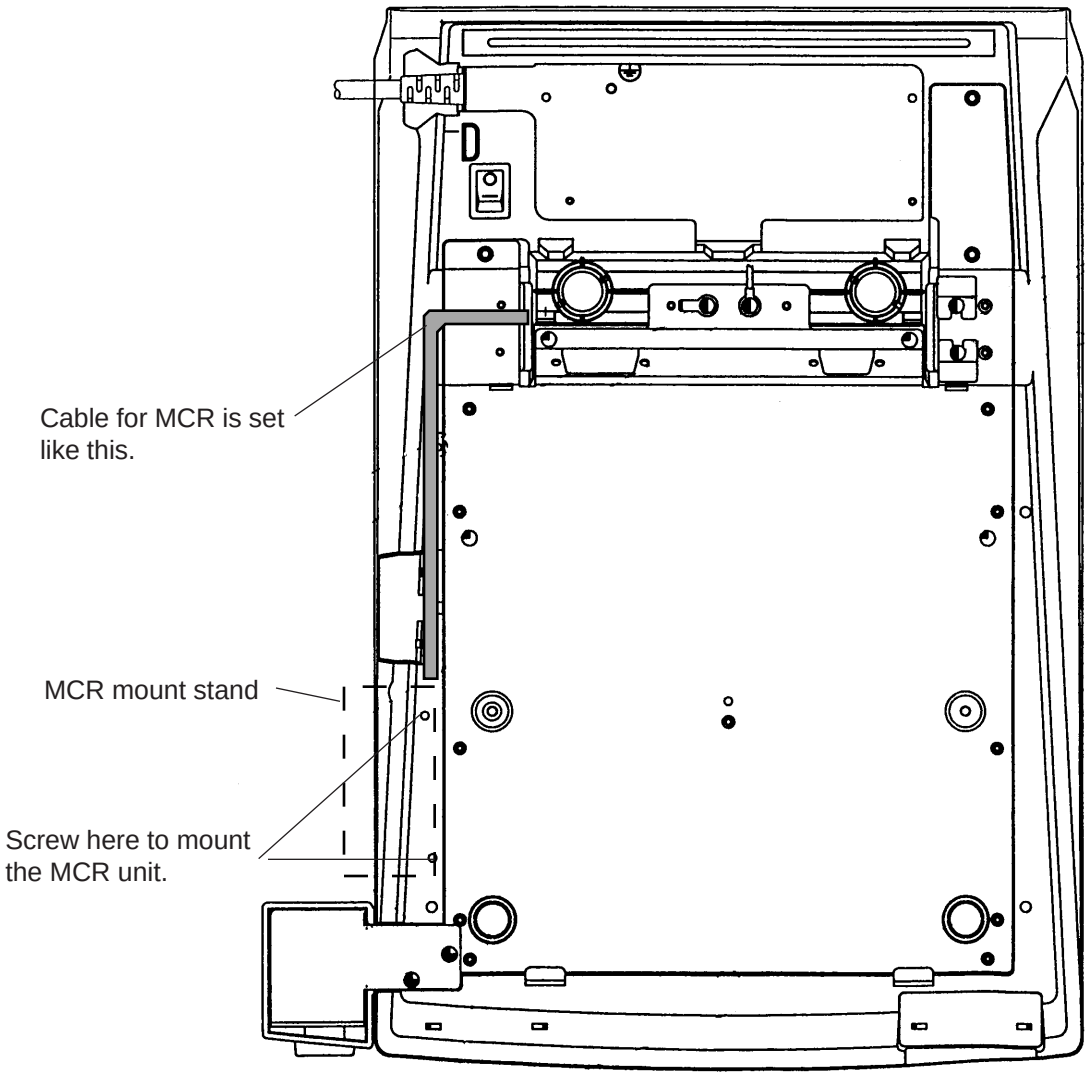
6-3. MCR Unit (QT-2046MC)

1. Release the screw which is fixing the keyboard and take tke keyboard out.
2. Remove the Main PCB and solder the connector which is in the QT-2046MC carton to the location CN1 on Main PCB.

2. Mount the MCR unit on the lower case by screws and insart the cable to inside of the machine from connector place.

4. Set the MAin PCB and connect the cable to CN1 on Main PCB.

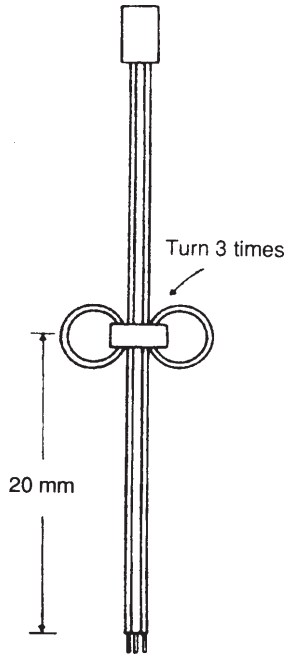




6-4. Multi drawer (MDL-8)

1. Release the screw which is fixing the keyboard and take tke keyboard out.
2. Round the cable of connector sub ass'y for drawer to ferrite core as following figure.
2. Remove the Main PCB and mount the following pars.
3. Connect the connector for FG to FG plate.

Location	Code No.	Name	Specification	Q'ty
Q9	22304151	Transistor	2SD1853	1
D16	23010127	Diode	1SR35-100A	1
	62195096	Connector sub ass'y for drawer	E32564-2(#24-800)	1
	62214686	connector for FG	E31553-17(#20-800)	1
	30304055	Ferrite core	L5T18X6X10	1
Not used	26004918	Carbon film resistor	R-25-1K-J	1
Not used	26007313	Carbon film resistor	R-25-10K-J	1
	51501640	Screw	3x10 ZMC-3	2

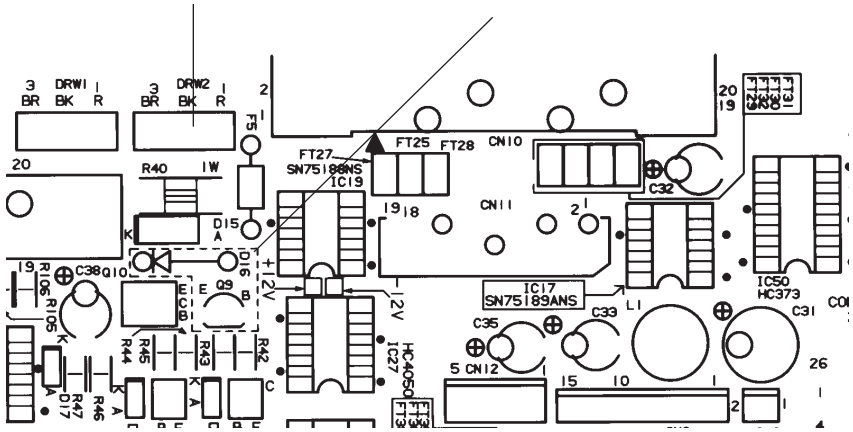


Round the cable of drawer connector.

Location for mounting parts

Sloder the connector ass'y for drawer here.

Mount the transistor and diode here.



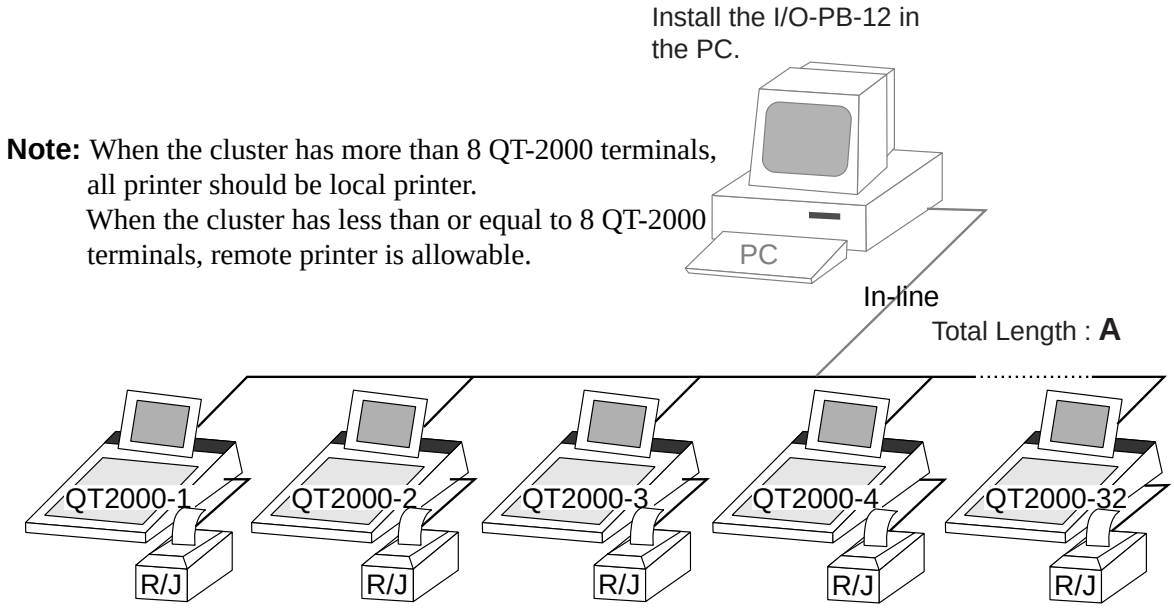
7. IN / ON LINE

7-1. C-In line (ARCNET)

1) C-In line connection diagram

The maximum C-In line cable length and the maximum connection unit will be varied by the in-line communication speed as shown below list.

[C-In line cable wiring]



Note: When the cluster has more than 8 QT-2000 terminals, all printer should be local printer.
When the cluster has less than or equal to 8 QT-2000 terminals, remote printer is allowable.

C-In line communication speed (Baud rate)	Maximum connection unit	Maximum cable length **A** (m)
1.25 M bps	8	86
625 K bps	12	200
312.5 K bps	20	430
156.25 K bps	32	890

Note : This C-In line system needs a I/O-PB-12 in the PC.

2) C-In line cable, Connector, and Terminater

C-In line cable

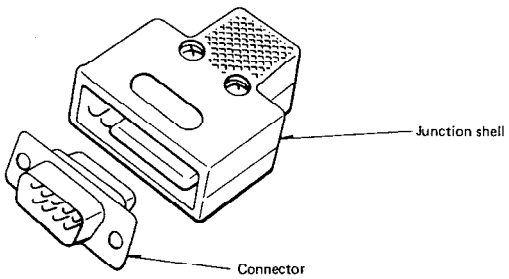
Code No.	Parts name	Specification
1904 4023	In-line cable	IPEV-SLA0.5x1P

C-In line connector(ECR side)

Code No.	Parts name	Specification
3500 5820	In-line connector kit	XLP-KIT-1

C-In line connector (PC side)

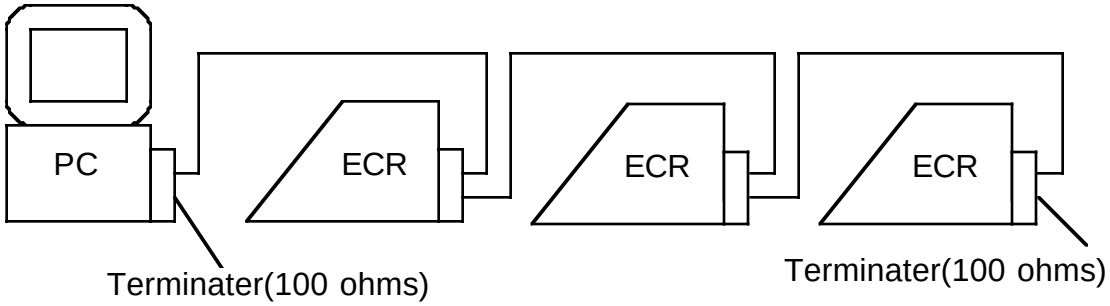
Code No.	Parts name	Specification
1904 4069	Connector	DE-9PF-N10
1904 4070	Junction shell	DE-C8-J9-F1



Terminater

Code No.	Parts name	Specification
2600 2516	Carbon film resistor	R-25-100-J

3) Termination point



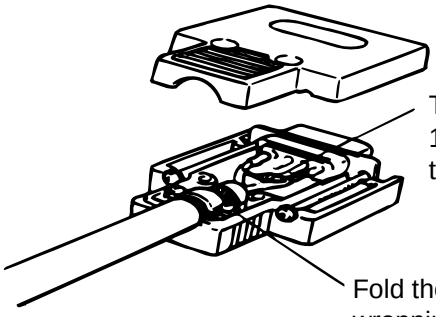
4) Cable connection diagram (PC and MasterECR)

Signal	Pin
SD	1
RD	3
FG	FG plate

(PC side)

Signal	Pin
SD	1
RD	2
FG	Disconnect

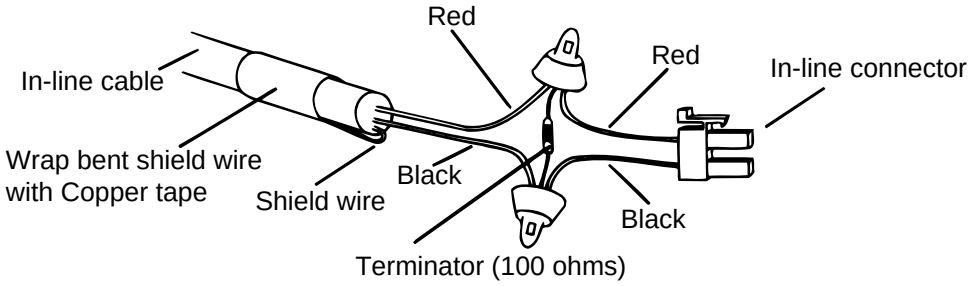
(ECR side)



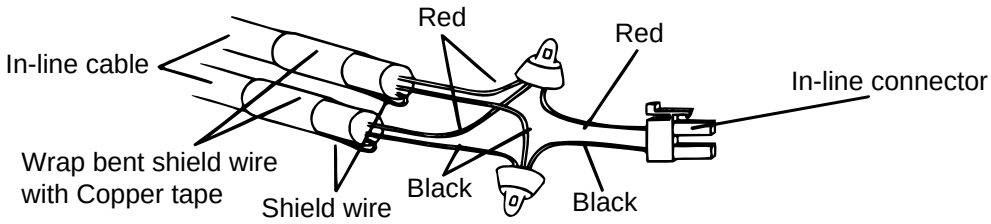
Termination 'R in series are connected at pins 1 and 3 of two connectors at both the ends of the in-line cable.

Fold the shield and fasten by wrapping copper tape.

5)Cable connection diagram (Master ECR and Satellite ECR)



[Connection between PC and Master ECR]

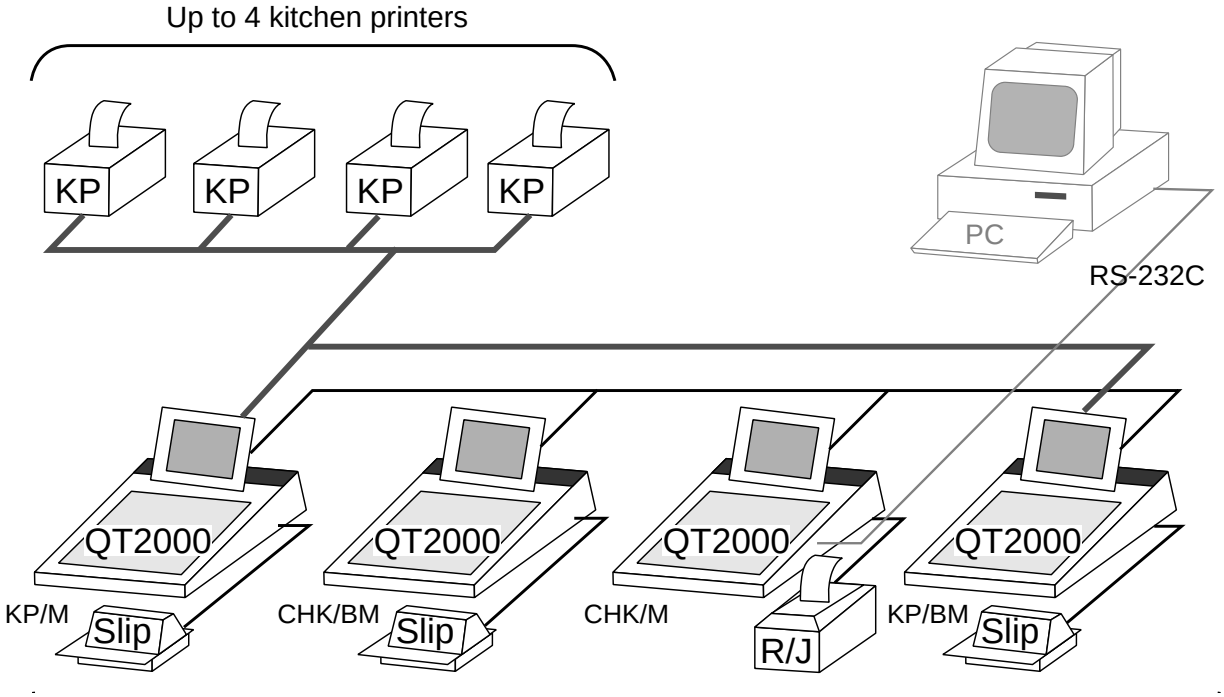


7-2. ON-line

Only the RS-232C Com3 port can be connected with a modem or perssonal computer.

1. Direct connection to PC

1-1. Connection layout



Using Com3 port

1-2. Cable wiring

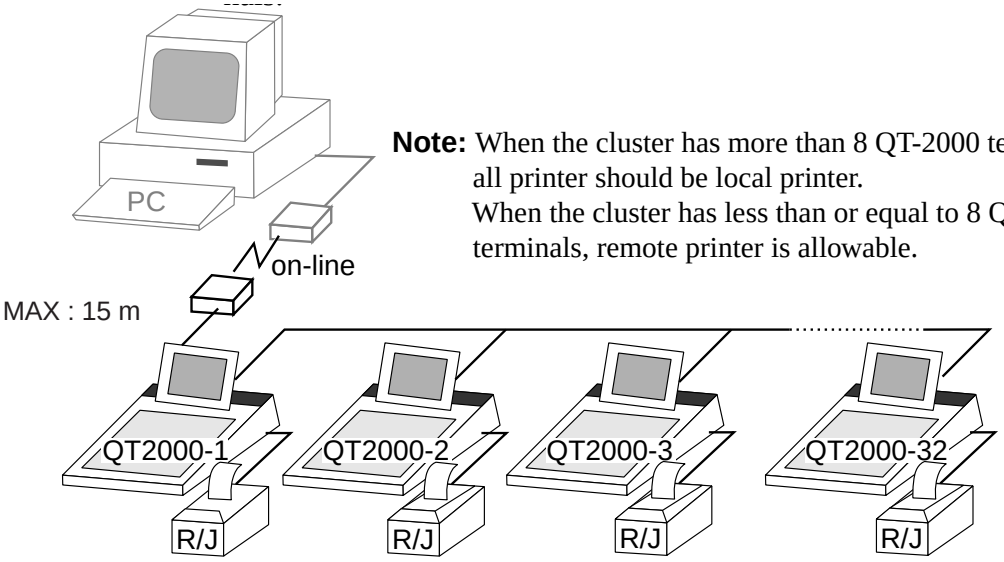
QT-2000 (Com3) PC

Pin No.	Signal name
3	SD / TXD
2	RD / RXD
7	RS / RTS
8	CS / CTS
1	CD / DCD
4	ER / DTR
6	DR / DSR
9	CI / RI
5	GND

Pin No. (DSUB9)	Pin No. (DSUB25)	Signal name
3	2	SD
2	3	RD
7	4	RS
8	5	CS
1	8	CD
4	20	ER
6	6	DR
-	22	CI
5	7	GND

2. MODEM system

2-1. Connection layout



Note: When the cluster has more than 8 QT-2000 terminals, all printer should be local printer.
When the cluster has less than or equal to 8 QT-2000 terminals, remote printer is allowable.

Use Com2 or
Com3 port

2-2. Cable wiring

QT-2000 (Com2) — MODEM (DSUB25)

Pin No.	Signal name	Pin No.	Signal name
3	SD/ TXD	2	SD
2	RD / RXD	3	RD
7	RS / RTS	4	RS
8	CS / CTS	5	CS
1	CD / DCD	8	CD
4	ER / DTR	20	ER
6	DR / DSR	6	DR
9	CI / RI	22	CI
5	GND	7	GND

QT-2000 (Com3) — MODEM (DSUB25)

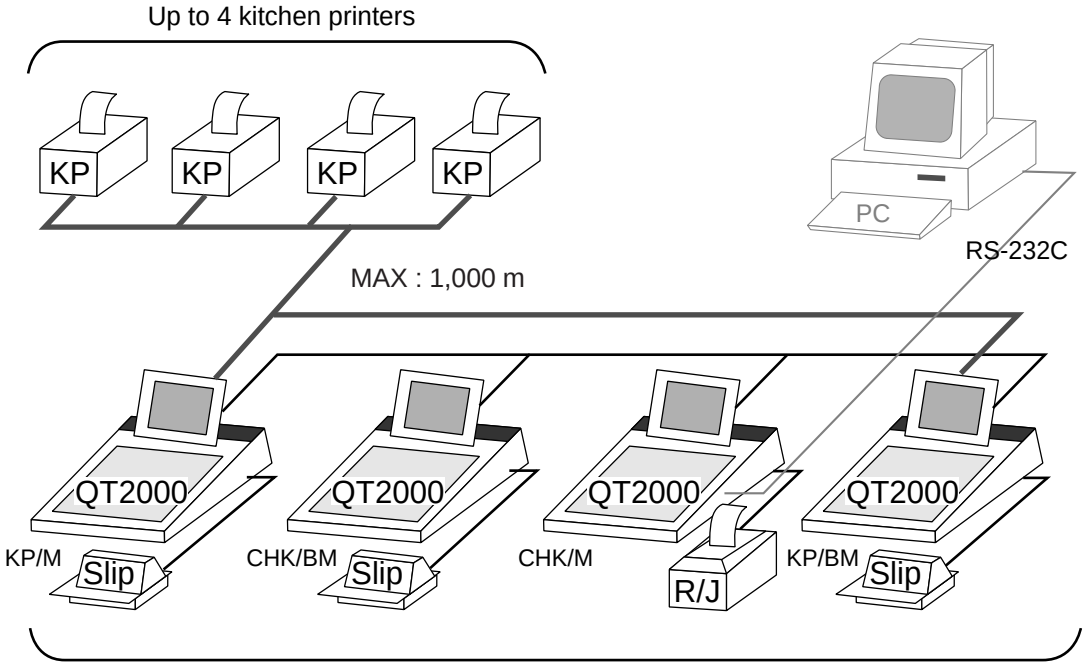
Pin No.	Signal name	Pin No.	Signal name
3	SD/ TXD	2	SD
2	RD / RXD	3	RD
7	RS / RTS	4	RS
8	CS / CTS	5	CS
1	CD / DCD	8	CD
4	ER / DTR	20	ER
6	DR / DSR	6	DR
9	CI / RI	22	CI
5	GND	7	GND

7-3. Kitchen printer connection

The kitchen printer control system requires a kitchen printer control master (and back up master) for kitchen printer control.

Maimum connection number : Max. 4 kitchen printer
Max. 4 terminals

1) Connection layout



2) Connector and cable

Cable

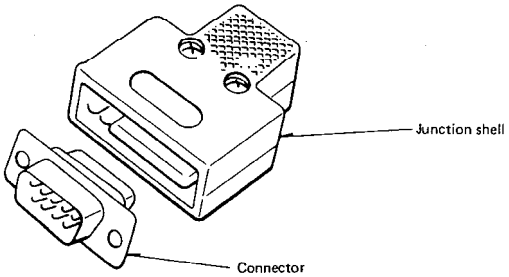
Code No.	Parts name	Specification
1904 4023	In-line cable	IPEV-SLA0.5x1P

Connector (ECR side)

Code No.	Parts name	Specification
3500 5820	In-line connector kit	XLP-KIT-1

Connector (KP side)

Code No.	Parts name	Specification
1904 4069	Connector	DE-9PF-N10
1904 4070	Junction shell	DE-C8-J9-F1



3) Cable connection diagram (ECR and Kitchen printer)

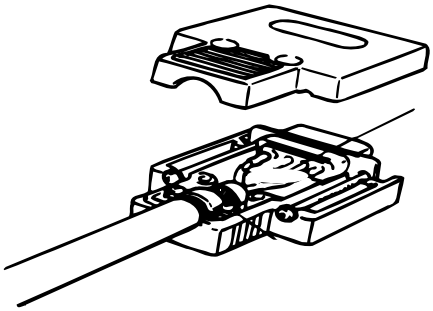
Signal	Pin
SD	1
RD	2
FG	FG plate

(ECR side)

Signal	Pin
SD	1
RD	3
FG	Disconnect

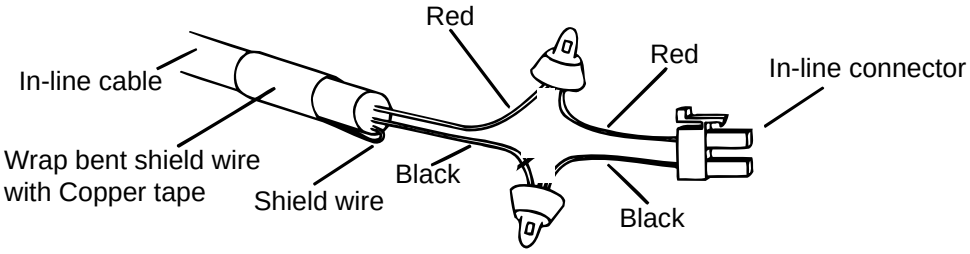
(KP side)

[Connection for Kitchen printer side]



Solder the cable as above wiring.

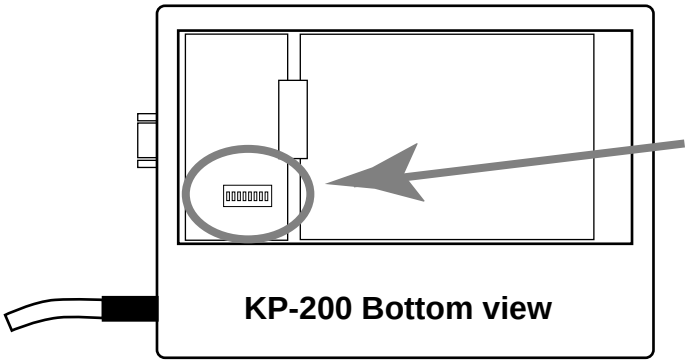
[Connection for ECR side]



4) Kitchen printer controll setting

DIP switch setting for kitchen printer model KP-200 and KP-300 are as follows;
When the the DIP switch is changed, it is necessary to make initilize the kitchen printer.
Otherwise, DIp switch status can not read the CPU inside the controll board.

To make initilize, pressing "LF" button and power on the machine.



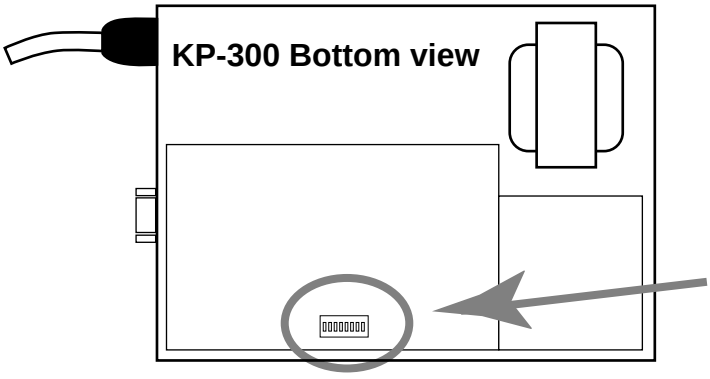
SW No.	Function	Factory setting
1	Machine number	OFF
2		OFF
3		OFF
4		OFF
5	Baud rate	ON
6		ON
7		OFF
8		OFF

Machine number setting

Kitchen printer machine number	DIP SW No.			
	1	2	3	4
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF

Baud rate setting

Baud rate	DIP SW No.				
	5	6	7	8	
600	OFF	OFF	OFF	OFF	not used
1200	ON	OFF	OFF	OFF	
2400	OFF	ON	OFF	OFF	
4800	ON	ON	OFF	OFF	
9600	OFF	OFF	ON	OFF	



SW No.	Function	Factory setting
1	Machine number	OFF
2		OFF
3		OFF
4		OFF
5	Baud rate	ON
6		ON
7		OFF
8		OFF

Machine number setting

Kitchen printer machine number	DIP SW No.			
	1	2	3	4
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF

Baud rate setting

Baud rate	DIP SW No.				
	5	6	7	8	
600	OFF	OFF	OFF	OFF	not used
1200	ON	OFF	OFF	OFF	
2400	OFF	ON	OFF	OFF	
4800	ON	ON	OFF	OFF	
9600	OFF	OFF	ON	OFF	

8.DIAGNOSTIC PROGRAM

1. Starting the diagnostic program

(1) While holding down the button on the upper left corner (9 on the standard keyboard sheet), turn the power on.

(2) Release the button when the cash register beeps a buzzer sound.

(3) Using 10-key pad, input [9][9][9][9][9][0][0][0][0][0] then press [SUB TOTAL].
Note: While in the diagnostic mode, use the right half of the SUB TOTAL button for [SUB TOTAL] operations.

2. List of the diagnoses

Command code	Device to be checked	Operation	Note
1	Rear display	n01	
2	Remote display	n02	
3	RJ printer	n03	RS-232C COM2 test
4	Slip printer	n04	
5	Keyboard	n05	buttons 1 to 168 check
6	OBR	n06	RS-232C COM1 test. Use checker bar code.
7	MCR	n07	Use checker magnetic card.
9	Drawer	n09	
10	Buzzer	n10	
11	Switches	11	
12	Clock	n12	
13	ROM	n13	EPROM (128kB) x 1
14	RAM	n14	Read/Write check
15	RAM	n15	Read check
16	MRAM	n16	Read/write check
17	MRAM	n17	Read check
20	Low-Inline	nm20	Transmit check
21	Low-inline	nm21	Receive check
25	Async online	m25	Loop back test
30	Infrared port	30	Infrared port receive test
31	Infrared port	n31	Infrared port transmit test

Command code	Device to be checked	Operation	Note
32	Standard LCD	n32	
33	Optional LCD	n33	
34	Flash memory	34	Read/Write/Clear test
38	ARCNET	n38	ARCNET ID set
39	ARCNET	n39	ARCNET baud rate, token
40	ARCNET	40	ARCNET token stop
41	ARCNET	nm41	ARCNET data transmit
42	ARCNET	nm42	ARCNET data receive

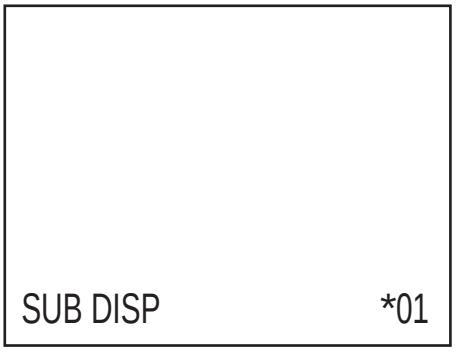
3. Diagnoses

(1) Dot/7-segment display test

Operation: [n][0][1][SUB TOTAL] (for the rear display)
[n][0][2][SUB TOTAL] (for the remote display)
n = Number of execution and should be within the range of 0 to 9.
If no number or “0” is input, the test continues endlessly.
To stop the test, press [ESC].

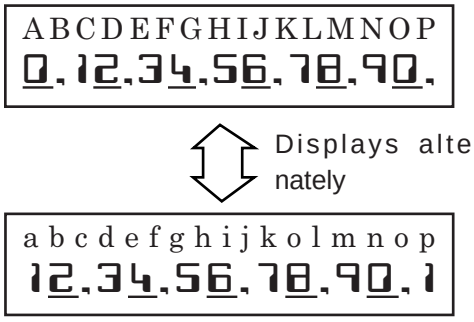
Display:

<LCD>



Displays “END *01” when the test is finished.

<Dot/7-segment>



RJ Print:

Prints “END *01” when the test is finished.

* Displays or prints 02 while testing a remote display.

(2) R/J Printer test (RS-232C COM2)

Prints B's on RS-232C printer for specified times.

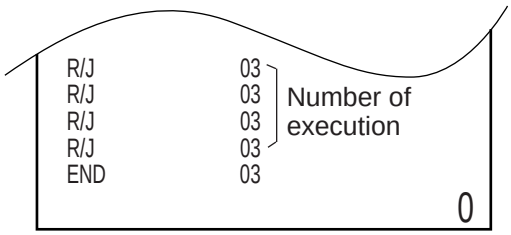
Operation: [n][0][3][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or "0" is input, the test continues endlessly.

To stop the test, press [ESC].

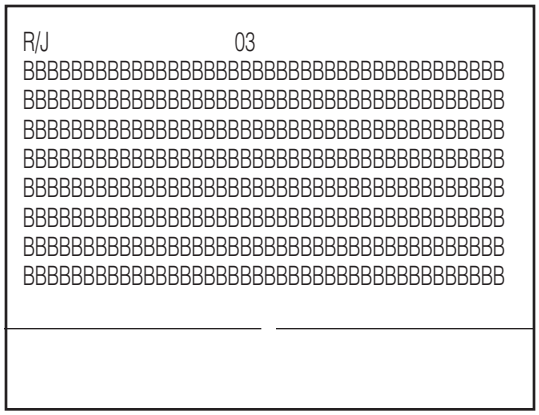
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



R/J Printer; TM-950 (2-sheet dot printer)
TM-T85 (1-sheet thermal printer)

⇦ Partial cut (TM-950 printer prints "B" on the most significant digit)
⇦ Feed
⇦ Full cut (TM-950 printer prints "A" on the most significant digit)

(3) Slip Printer test

Prints a test pattern on the slip printer for specified times and releases the slip.

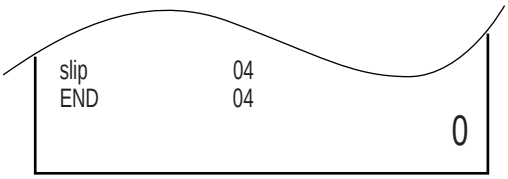
Operation: [n][0][4][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or "0" is input, the test continues endlessly.

To stop the test, press [ESC].

Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

Slip print:

⇦ Release

(4) Keyboard test

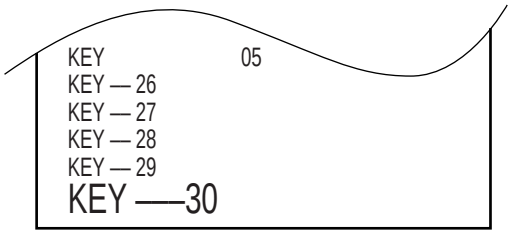
The display shows pressed button number when the key switch functions correctly.

Operation: [0][5][SUB TOTAL]

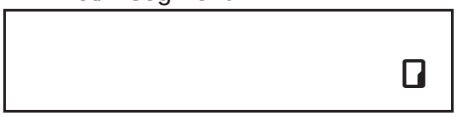
Press buttons and make sure that the pressed button number is displayed on the LCD.

Note: As [ESC] (button number159) button exits the diagnosis program, press [ESC] at the end.

Display: <LCD>

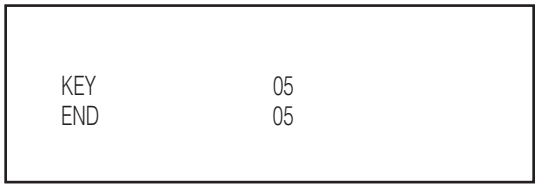


<Dot/7-segment>



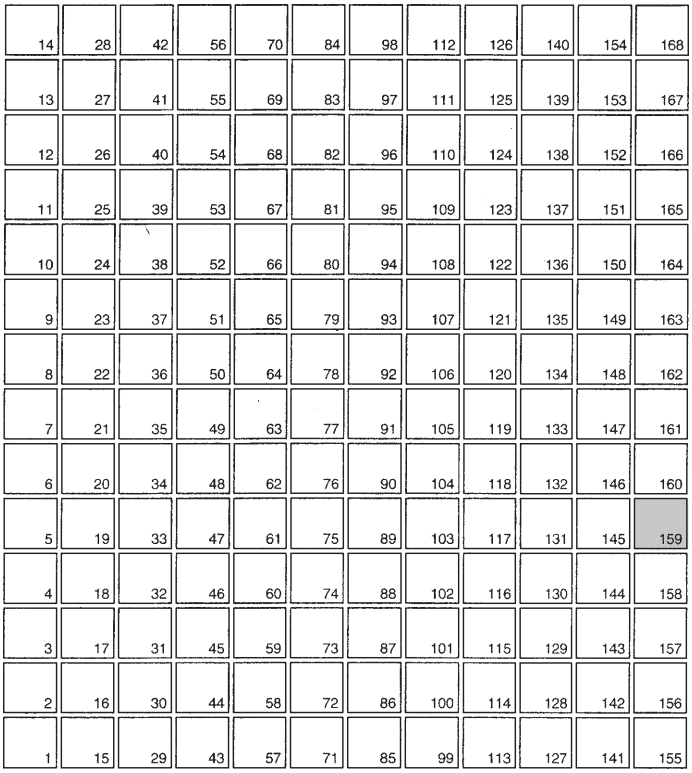
Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J Print:



“END 05” will be displayed and printed when [ESC] (button number 159) is pressed.

<Button numbers>



⇦ Press this button at the end.

(5) OBR test

Use only the checker bar code in which data 49401387 is written.
The program checks if the read data is 49401387.

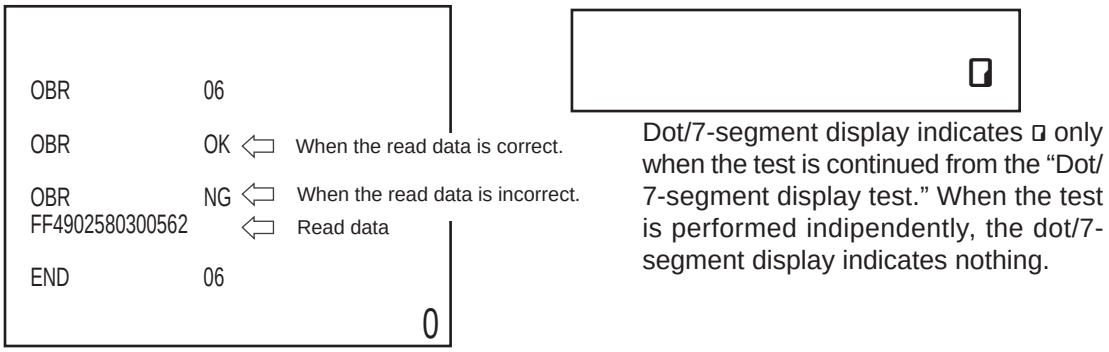
Operation: [n][0][6][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

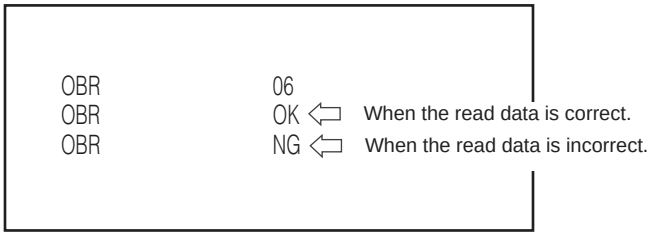
To stop the test, press [ESC].

Display: <LCD> <Dot/7-segment>



Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J Print:



(6) MCR test

Use only the checker magnet card.

Operation: [n][0][7][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

To stop the test, press [ESC].

Display: <LCD>

```
MCR              07

#1:OK  #2:OK

#1:NG  #2:NG     ⇦ When the read data is incorrect, display indicates NG and shows read data.
MCR#1
  |
MCR#2
  |
END              07

                 0
```

<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

Note: When MCR read error occurs, the display indicates “MCR READ ERR.”

R/J Print:

```
MCR              07
#1:OK  #2:OK     ⇦ “NG” when incorrect
END              07
```

(7) Drawer test

Opens two drawers (multi drawer is optional) and shows open sensor status on the LCD.

Operation: [n][0][9][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

To stop the test, press [ESC].

Display: <LCD>

```
DRAWER           09
DRAWER:  OPEN    ⇦ “NOT OPEN” when drawer does not open
END              09

                 0
```

<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J Print:

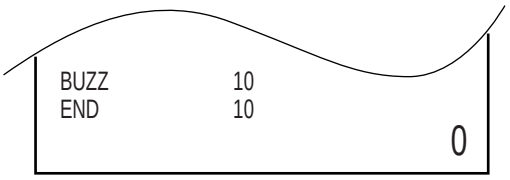
```
DRAWER           09
END              09
```

(8) Buzzer test

Beep every 100 milliseconds. In one test, 2 buzzer sound.

Operation: [n][1][0][SUB TOTAL]
n = Number of execution and should be within the range of 0 to 9.
If no number or “0” is input, the test continues endlessly.
To stop the test, press [ESC].

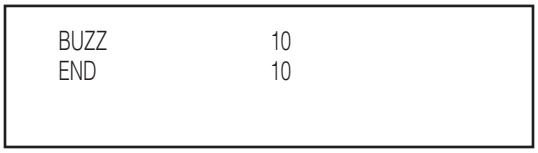
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J Print:

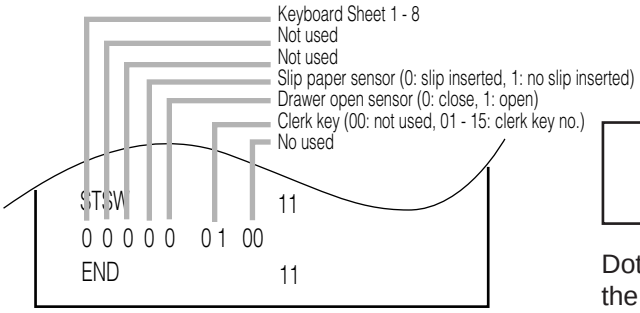


(9) Switch test

Displays statuses of the switches and sensors of the connected devices.

Operation: [1][1][SUB TOTAL]
To stop the test, press [ESC].

Display: <LCD>


Keyboard Sheet 1 - 8
Not used
Not used
Slip paper sensor (0: slip inserted, 1: no slip inserted)
Drawer open sensor (0: close, 1: open)
Clerk key (00: not used, 01 - 15: clerk key no.)
No used
STSW 11
0 0 0 0 0 0 1 00
END 11

<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J Print:

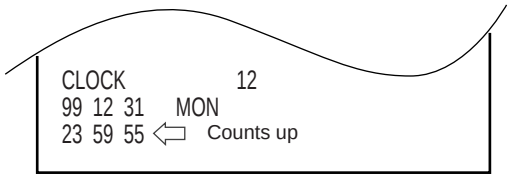
(10) Clock test

Operation: (1) Press [0][1][2][SUB TOTAL]

Display indicates date 99 12 31 MON, time 23 59 55.

If [1] is input instead of the first [0], the display shows the present time.

<LCD>

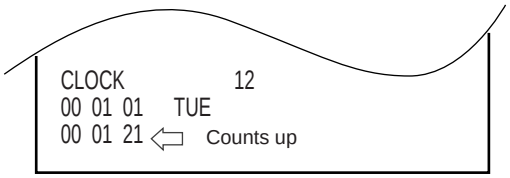


<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

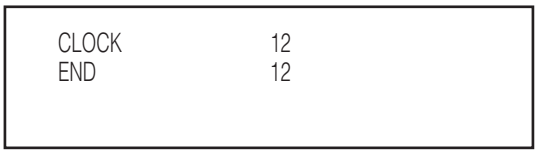
(2) Turn the power off.

(3) After for a while, turn the power on and make sure that the time has been counted while the register is off.



(4) Press [ESC] to exit from the program.

R/J Print:



(11) ROM test

Performs check sum test of the EPROM. Checks all the files written in the ROM and when an error occurs, the LCD indicates the faulty file name and starting address of the file.

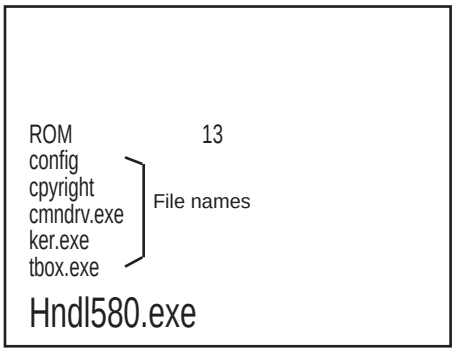
Operation: [n][1][3][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

To stop the test, press [ESC].

<LCD>

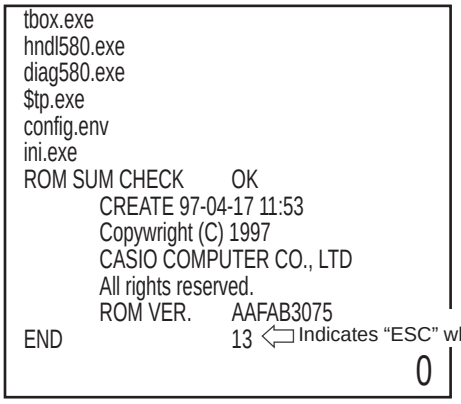


<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

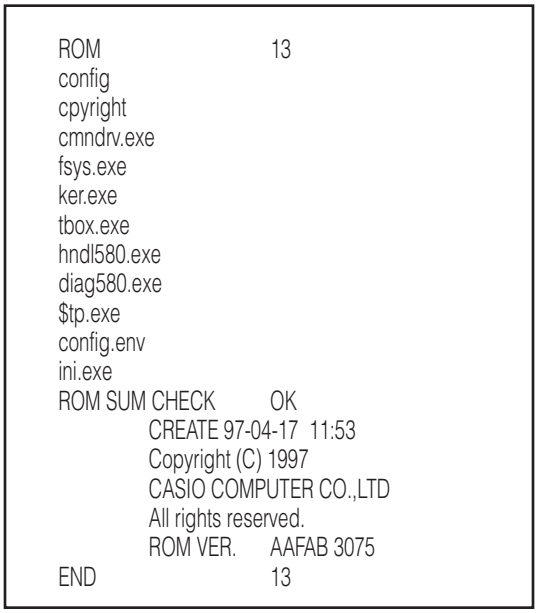
After the test, display indicates the result.

<LCD>



⇦ Indicates “ESC” when the test is finished forcibly by [ESC].

R/J Print:



(12) RAM Read/Write test

Performs read after write test on RAM addresses 20000H to 3FFFF.

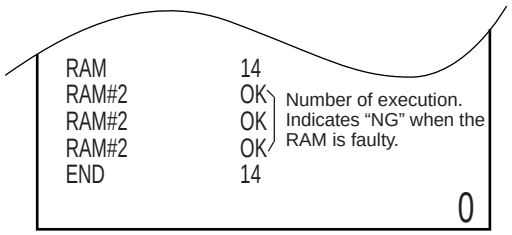
Operation: [n][1][4][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

To stop the test, press [ESC].

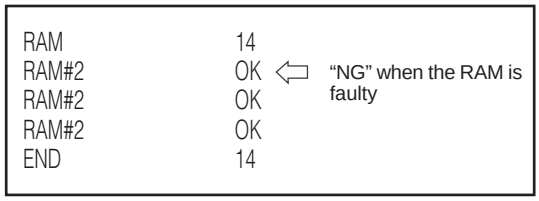
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



(13) RAM Read test (memory backup test)

The program checks if RAM contents stored at the “RAM read/write test” are backed up after turning the power off.

Operation: (1) After the above “RAM Read/Write test”, turn the power off.

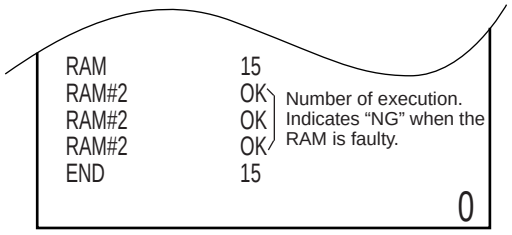
(2) After for a while, turn the power on then press [n][1][5][SUB TOTAL].

n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

To stop the test, press [ESC].

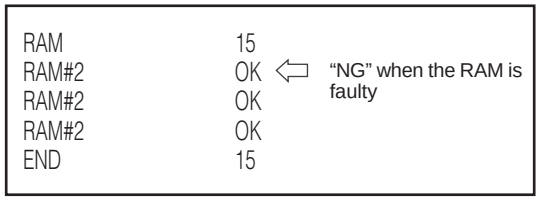
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



(14) Mass RAM Read/Write test

Using the gate array and the CPU in QT-2000 circuit, the program performs RAM's mass data (in 128k byte unit) read after write test. The program does not diagnose VRAMs.

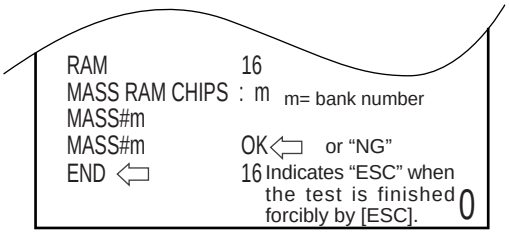
Operation: [n][1][6][SUB TOTAL].

n = Number of execution and should be within the range of 0 to 9.

If no number or "0" is input, the test continues endlessly.

To stop the test, press [ESC].

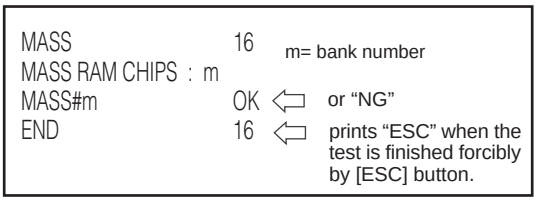
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



(15) Mass RAM backup test

The program checks if the memory contents stored in "Mass RAM read/write test" are backed up after power is turned off then on again.

Operation: (1) After the above "RAM Read/Write test", turn the power off.

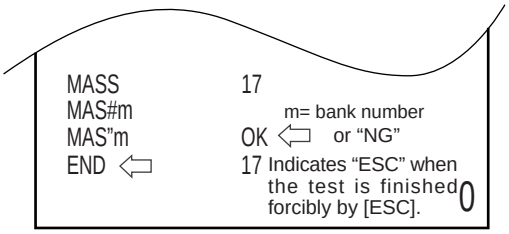
(2) After for a while, turn the power on then press [n][1][7][SUB TOTAL].

n = Number of execution and should be within the range of 0 to 9.

If no number or "0" is input, the test continues endlessly.

To stop the test, press [ESC].

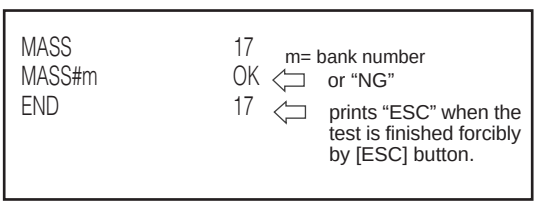
Display: <LCD>



<Dot/7-segment>

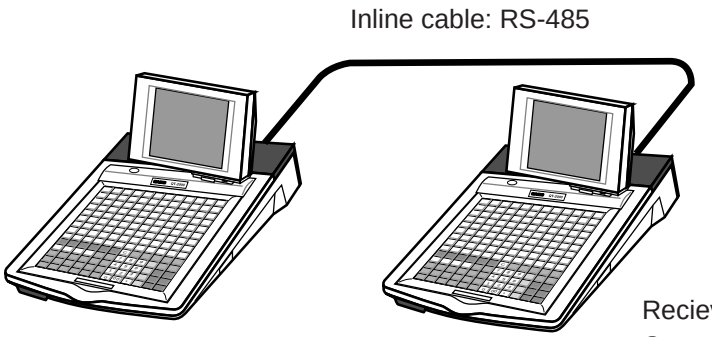
Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



(16) Low inline data transmission test

Connect two QT-2000s with a standard inline cable (RS-485).



Perform the reception unit operation first then the transmission unit.

Operation: [n][m][2][0][SUB TOTAL]

n = Number of execution and should be within the range of 0 to 9.

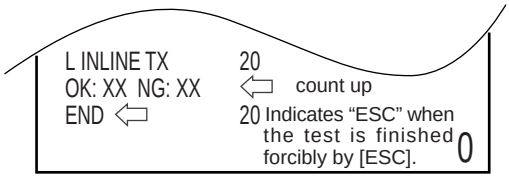
If no number or “0” is input, the test continues endlessly.

m = baud rate (m > n) ; 0 : 1200 bps, 1: 2400 bps, 2: 4800 bps, 4: 9600 bps, 5: 19200 bps

To stop the test, press [ESC].

Display:

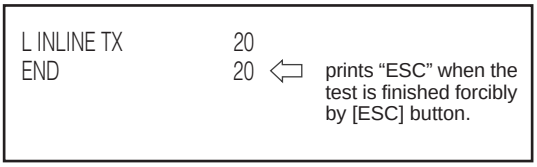
<LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



(17) Low inline data reception test

Connect two QT-2000s with a standard inline cable (RS-485).
Perform the reception unit operation first then the transmission unit.

Operation: [n][m][2][1][SUB TOTAL]

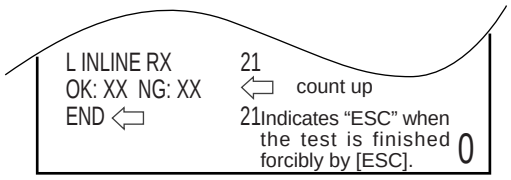
n = Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

m = baud rate (m > n) ; 0 : 1200 bps, 1: 2400 bps, 2: 4800 bps, 4: 9600 bps, 5: 19200 bps

To stop the test, press [ESC].

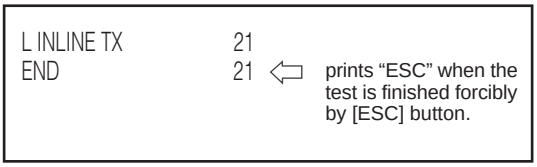
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:



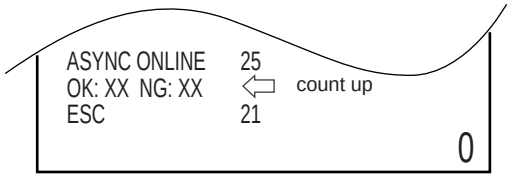
(18) Asynchronous online test (loop back test)

Prepare the loop back connector.
Loop back connector wiring.

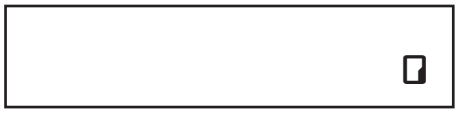
Connect a loop back connector on COM3 port and perform the loop back test.

Operation: [m][2][5][SUB TOTAL]
m = baud rate ; 0: 1200 bps, 1: 2400 bps, 2: 4800 bps, 4: 9600 bps, 5: 19200 bps, 6:38400 bps
To stop the test, press [ESC].

Display: <LCD>

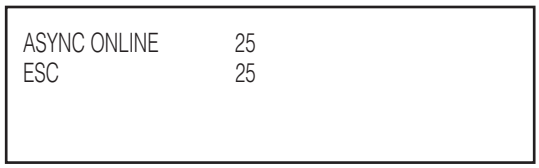


<Dot/7-segment>



Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

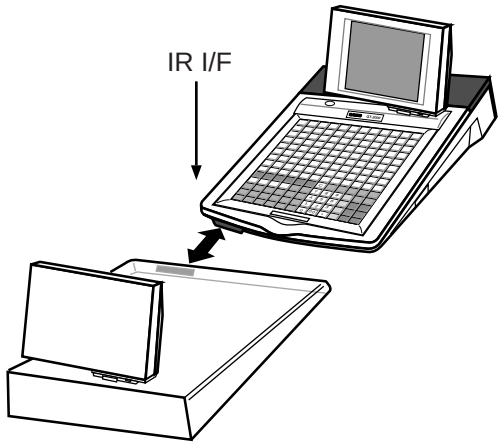
R/J print:



(19) Infrared

Prepare two units of QT-2000 and set both units on the diagnostic mode. Face both units so that they can communicate by the infrared ports.

Prepare 2 machine and touch each IR I/F.

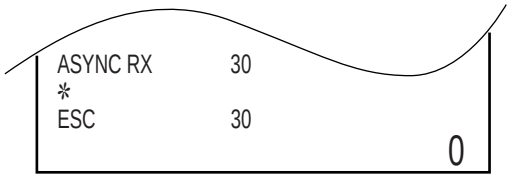


Sender
Command code: 30

Reciever
Command code: 31

Operation: (1) On the receiving unit, press [3][0][SUB TOTAL].

The LCD on the receiving unit indicates;



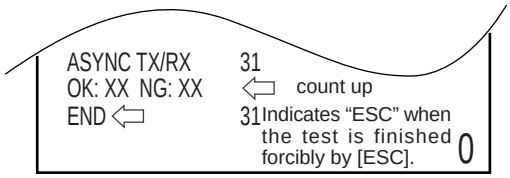
(2) On the transmission unit, press [n][3][1][SUB TOTAL].

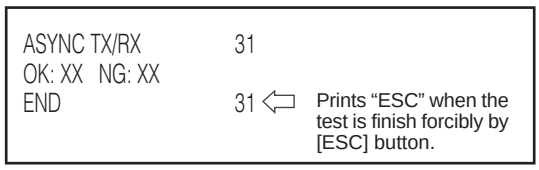
n= Number of execution and should be within the range of 0 to 9.

If no number or “0” is input, the test continues endlessly.

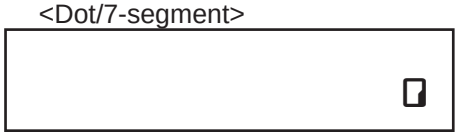
To stop the test, press [ESC].

Display <LCD>





<Dot/7-segment>

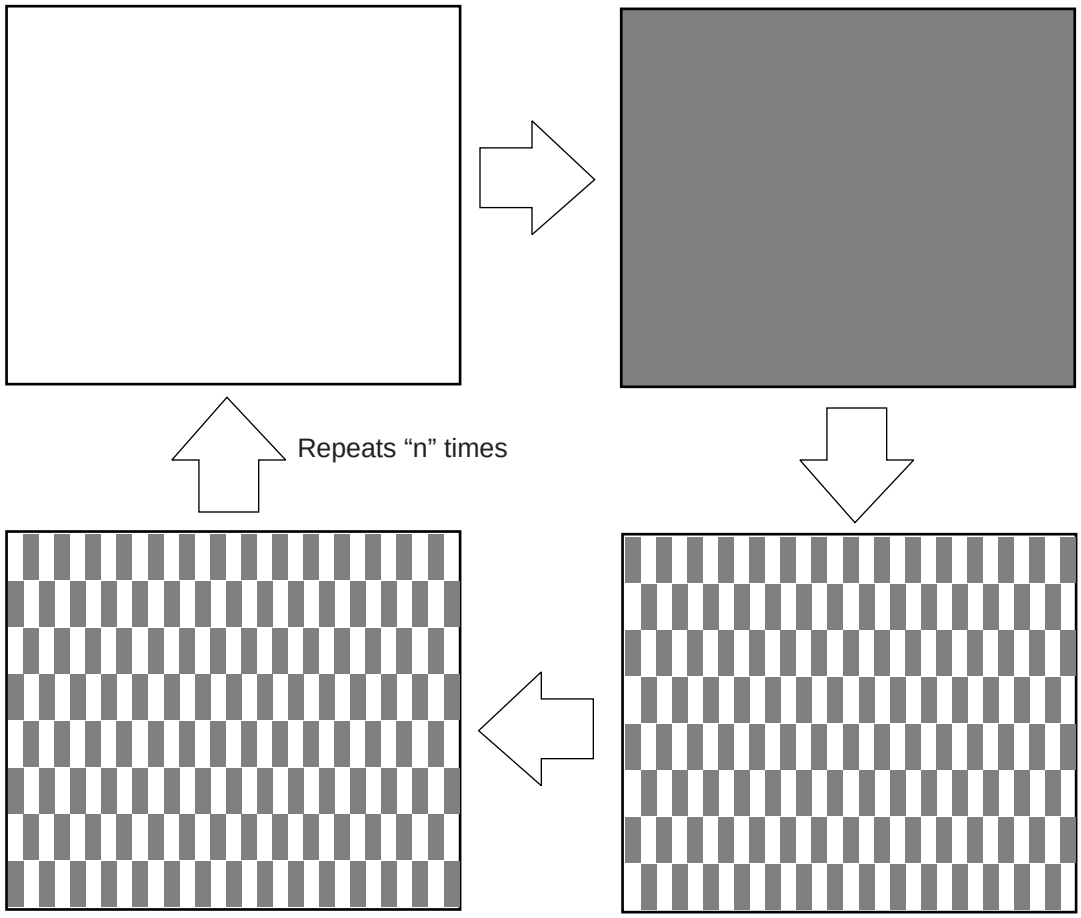


Dot/7-segment display indicates ◘ only when the test is continued from the “Dot/7-segment display test.” When the test is performed indipendently, the dot/7-segment display indicates nothing.

(20) LCD test

Operation: [n][3][2][SUB TOTAL] (for standard LCD)
[n][3][3][SUB TOTAL] (for optional LCD)
n = Number of execution and should be within the range of 0 to 9.
If no number or “0” is input, the test continues endlessly.
To stop the test, press [ESC].

Display: <LCD>



R/J print

```
LCD                32
END                32
```

(21) Flash memory read/write/clear test

Performs read after write check on each bank of the flash memory. At the end of the test, all the data in the flash memory are cleared.

The following table illustrates the relation between the address and the bank of the flash memory.

60000h	Bank 1	Bank 9	Bank 17	Bank 25
	Bank 2	Bank 10	Bank 18	Bank 26
80000h	Bank 3	Bank 11	Bank 19	Bank 27
	Bank 4	Bank 12	Bank 20	Bank 28
A0000h	Bank 5	Bank 13	Bank 21	Bank 29
	Bank 6	Bank 14	Bank 22	Bank 30
C0000h	Bank 7	Bank 15	Bank 23	Bank 31
	Bank 8	Bank 16	Bank 24	Bank 32
E0000h				

Operation: [3][4][SUB TOTAL]

To stop the test, press [ESC].

Display: <LCD>

```
Flash              34
BANK#1  OK ⇦  or "NG"
BANK#2  OK
BANK#3  OK
BANK#4  OK
BANK#5  OK
      ⋮
BANK#32   OK
END                34
                    0
```

<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:

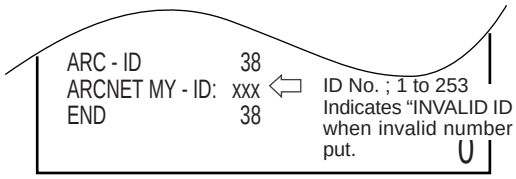
```
FLASH              34
BANK#1      OK⇦  or "NG"
BANK#2      OK
BANK#3      OK
      ⋮
BANK#32     OK
END                34
```

(22) ARCNET test-1 (ID number setting)

Sets ID number of ARCNET. Be sure to perform this program before doing the following ARCNET tests.

Operation: [m][m][m][3][8][SUB TOTAL]
mmm = ID number (001 to 253)

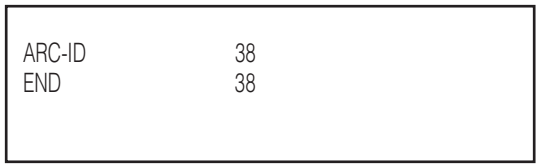
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:

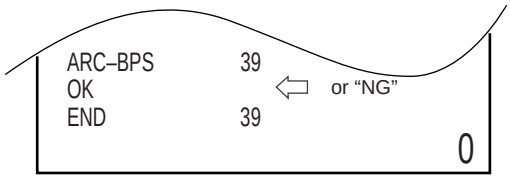


(23) ARCNET test-2 (baud rate setting, ARCNET communication)

After setting the baud rate, QT-2000s in the ARCNET start communications.

Operation: [n][3][9][SUB TOTAL]
n = baud rate; 0: 156.25kbps, 1: 312.5kbps, 2: 625kbps, 3: 1.25Mbps

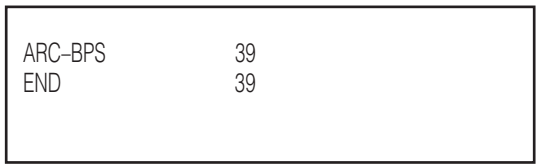
Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:

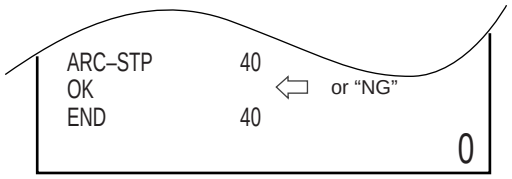


(24) ARCNET test-3 (ARCNET communication stop)

Terminates the ARCNET communications.

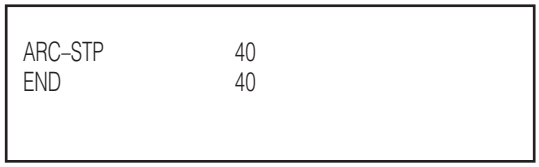
Operation: [4][0][SUB TOTAL]

Display: <LCD> <Dot/7-segment>



Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

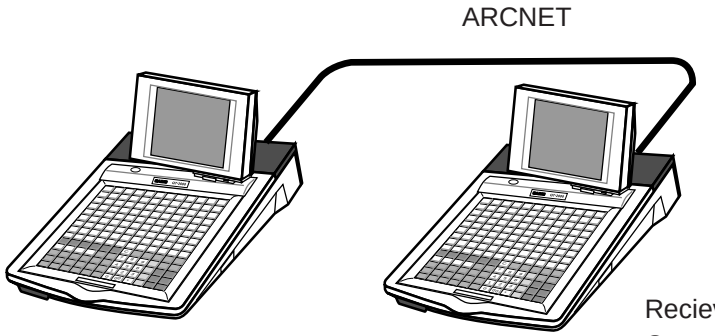
R/J print:



(25) ARCNET test-4 (ARCNET data transmission/reception)

Checks data transmission and reception in the ARCNET.

Preparation



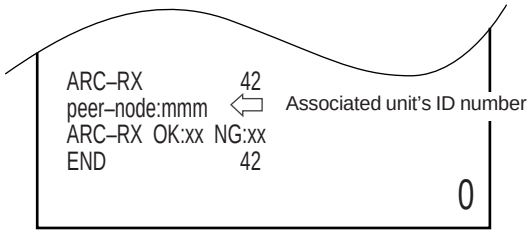
Sender
Command code: 41

Reciever
Command code: 42

Operation: (1) Connect QT-2000s with ARCNET (inline) cable.

(2) On the reception unit, press [n][m][m][m][4][2][SUB TOTAL].
n = number of execution. Should be within 0 to 9. If 0 or no number is input, the execution continues endlessly.
mmm = ID number of the unit from which the data is sent.
To stop the test press [ESC].

Display: <LCD>



<Dot/7-segment>

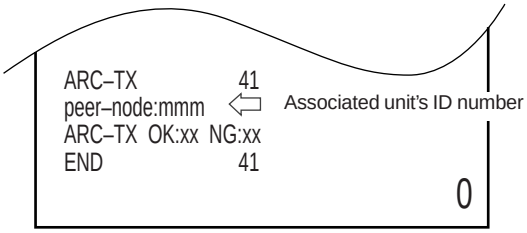
Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:

```
ARC–RX          42
END             42
```

(3) On the transmission unit, press [n][m][m][m][4][1][SUB TOTAL].
n = number of execution. Should be within 0 to 9. If 0 or no number is input, the execution continues endlessly.
mmm = ID number of the unit to which the data is sent.
To stop the test press [ESC].

Display: <LCD>



<Dot/7-segment>

Dot/7-segment display indicates ◘ only when the test is continued from the "Dot/7-segment display test." When the test is performed indipendently, the dot/7-segment display indicates nothing.

R/J print:

```
ARC–TX          41
END             41
```

9. ERROR CODE LIST

9-1. Error message

When an error occurs on the QT-2000 terminal, buzzer sounds and the error message appears on the main LCD screen.

The following table lists the error messages and descibes the action to takae.

Prompt message	Meaning
Operator mistake	Operation error
E001 Wrong Mode	Check tracking (Open mode error)
E003 Wrong operator	Error clerk/Error clerk in CHK tracking
E005 Insufficient memory	Memory allocation over
E011 Close the drawer	Drawer compulsory
E012 Change journal roll	Journal paper near end
E013 Change receipt roll	Receipt/order paper near end
E016 Change back to REG mode	Prohibit plural operation in RF mode
E017 Enter Check/TBL number	Check # compulsory
E018 Enter Table No.	Table # compulsory
E019 Enter Number of covers	Cover compulsory
E020 Enter Seat number	Seat number compulsory
E023 Stock running short	Alarm when any item drops below its programmed minimum stock quantity during registration
E024 No stock is available	Error when actual stock value for a registration items is a negative value
E027 Cancel buffer full. Please finalize the transaction	All void buffer full
E029 No registration is possible while you are in the tender operation.	Attemted registraion whilist partial tender operation is being done.
E031 Press ST key before Finalization	ST compulsory
E033 Enter tendered amount	Amount tender compulsory
E035 Change amount exceeds the limit.	Change amount exceeds the limit.
E036 Remove money from the drawer.	Contents of the drawer exceed the programmed limit—Sentinel function
E037 Digit or Amount Limitation Over	H.D.L., H.A.L.O error
E038 Perform Money Declaration	Money declaration compulsory
E040 Issue Guest Receipt	Guest receipt compulsory
E041 Print Validation	Validation compulsory
E042 Insert VLD Paper and retry	Alarm when no paper is inserted.
E043 Remove VLDed paper or check VLD sensor	Alarm when the paper is left in the validation stage of the printer.
E044 Print Check	CHK-PRT compulsory
E045 Print Check-Endorsement	CHK-END compulsory
E046 REG Buffer Full. Please Finalize or NB.	Registration buffer full
E047 Print bill	Slip compulsory
E048 Insert Slip Paper and retry.	Alarm when no paper is inserted in the Slip.
E049 CHECK memory full	CHK tracking index full/near end
E050 Detail memory Full.	CHK tracking memory full/near end
E051 CHK/TBL No. is occupied.	Attempt made to use the New Check key to open a new check using a number that is already used for and existing check tracking memory
E052 CHK/TBL No. is busy.	Attempt to use the same check number whilst the specified number is used in the other terminal

Prompt message	Meaning
E053 CHK/TBL No. is not opened.	CHECK# not found
E054 Out of CHK/TBL No. Range	CHECK# range over
************** **E060 Printer offline.**	Printer offline. "****" means ECR logical ID or KP1 ~ KP4.
************** **E061 Printer error**	Printer downed. "****" means ECR logical ID or KP1 ~ KP4.
************** **E062 Printer paper end**	Paper near-end/end "****" means ECR logical ID or KP1 ~ KP4.
E064 Printer buffer full	Print buffer full at sender side
E067 Both KP Master&Backup master down. **KP control is not available.**	KP printing is disabled.
************** **E068 KP Master is removed from system.**	KP master is removed from the system. "****" means ECR logical ID.
************** **E069 Kitchen Printer Master down.** **Retry or Remove it from system?** **YES: Retry for connection.** **NO : Remove it from system.**	KP control master down "****" means ECR logical ID.
************** **E070 Terminal out of action.** **Cannot print.**	Down at target ECR which has printer "****" means ECR logical ID.
************** **E071 Target terminal printer BF full.** **Retry?**	Printer buffer full at target ECR which has printer "****" means ECR logical ID.
************** **E072 Target printer terminal is busy.** **Retry?**	Busy at target ECR which has printer "****" means ECR logical ID.
************** **E073 No answer from target terminal.**	Time out at ECR which has printer "****" means ECR logical ID.
E075 Negative Balance. **Cannot be finalized.**	Attempted finalization when balance is less than zero
E080 Journal Memory Full **Please clear J-memo file.**	J-memo full
E081 Data not found in J-memo	Data cannot be found in journal memory
E082 *** Illegal Data *******	Illegal J-memo data
E083 Cannot create J-memo file. **Check Flash memory.**	J-memo file cannot be created.
E085 Data exist in Consolidation area.	Data exists in consolidation area
************** **E105 Check/TBL Tracking Master down.** **Retry or Remove it from system?** **YES: Retry for connection.** **NO : Remove it from system.**	CHK master down "****" means ECR logical ID.
************** **E106 Check/TBL Tracking Backup master down. Retry or Remove it from system?** **YES: Retry for connection.** **NO : Remove it from system.**	CHK BM down "****" means ECR logical ID.

Prompt message	Meaning
********** **E107 Both Master&Backup master down. CHK/TBL tracking or Clerk interrupt is not available.**	CHK M/BM down "****" means ECR logical ID.
********** **E108 CHK/TBL Master is removed from system.**	Master down then take it off from system "****" means ECR logical ID.
********** **E109 CHK/TBL Backup master is removed for system.**	Backup master down then take it off from system "****" means ECR logical ID.
E110 CHK data mismatch between Master&Backup master.	Data mismatch is occured.
E130 Middle of Pick up or Loan Press Cancel Key.	During picking up
E131 Middle of <Bill Copy> Press Cancel key	During Bill copy
E132 Middle of Money Declaration. Press Cancel key	During Money declaration
E133 Middle of <Media Change> Press Cancel key	During Media CHG
E134 Middle of Clerk Transfer Press Cancel key	During CLK Trans
E136 Middle of <Separate Check> Press ESC key	During SEP CHK
E138 Item are consolidated. Change display mode and perform VOID operation.	Void operation is prohibited because of entering quantity.
E139 Not allowed to be negative by Minus/Coupon key.	Credit balance error
E140 Wrong menu.	This sheet holder is prohibited by PGM
E145 Arrangement syntax error.	Arrangement syntax error
E150 Incorrect value entry.	Incorrect entry for PGM
E151 Incorrect key Pressed.	Linking is incorrect
E152 PGM File or Record number does not Exist.	No such file, no such record
E160 Flash memory full	Flash memory full
E161 No backup data in Flash Memory	No data is backuped in Flash memory

9-2. System error code

Thses error codes are displayed or printed on error log report.

Error code	Meaning
0010	Handler access error (software)
0011	Cannot execute handler (system configuration)
0012	Break by PC
0013	Break by ECR
0014	DSR off before receiving command packet
0015	Receive illegal command number of command packet
0016	Receive illegal character
0017	Send error (hardware)
0018	Receive error (hardware)
0019	Receive illegal data packet
0020	No response error
0021	Cannot initialize or cannot get ID
0022	Received illegal packet
0023	CNET receive error
0024	Illegal termination by sender
0025	Received illegal packet during receiving other packets
0026	Not enough data packets received
0027	Flash erase error
0028	Flash write error
0040	No "H" information
0041	No "I" information
0042	No "F" information
0044	Illegal file name
0045	No file exists
0046	Illegal block
0047	Illegal command packet
0048	Illegal command No. (Not CMD)
0049	Illegal command No. (Not DATA)
0050	Sequence error
0051	Turn off DSR signal
0052	Received cancellation
0053	Retry over while waiting command
0054	Retry over while waiting EOT
0055	Retry over while waiting data
0056	Received EOT
0057	Retry over while waiting ACK
0058	Retry over while sending data
0059	Retry over while waiting "C"
0060	Retry over while sending response
0061	Retry over while excluding
0064	Break end
0065	Error during printing report header
0066	Error during printing report data
0067	Error during printing report data in work area
0068	Error during printing report data in consolidation area
0069	Work file clear error
0070	Consoloidation file clear error
0071	Z lock error
0072	Z clear error
0073	Z lock release error

Error code	Meaning
0074	Error during accumulating to consolidation area
0075	Error during copying report data from terminal memory to work.
0076	Error during copying stock data to terminal memory
0077	Z lock error on satellite terminal
0078	Z clear error on satellite terminal
0079	Z lock release error on satellite terminal
0128	Parameter error to operating system
0129	Out of heap space
0130	Error drive
0132	In-line TP packet size error
0133	In-line retry over
0140	Calculation parameter error
0141	Out of file range
0144	Calculation overflow
0145	In-line open error
0146	In-line close error
0147	In-line bind error
0149	SYN signal not received
0150	Not connected in-line
0151	Not disconnected in-line
0152	Use illegal NCB
0153	In-line retry over
0155	In-line sequence error
0156	In-line no port exists
0158	In-line target port in use
0161	System resource is busy
0162	Polling semaphore NG
0170	Cannot rename
0171	No code is found while search/pick up
0173	File delete error (already opened)
0174	No file exists
0175	No relocatable information
0176	Not enough memory during file creation
0177	Record number error while reading/writing a file
0179	Double create error
0182	Flash write error
0184	Flash clear error
0190	No exist the object mail box
0191	No message arrived
0192	Error send message id
0193	Send message length over
0194	Too long message against slot
0195	No free file for mail box
0196	Not found the objected system params.
0197	Queue empty
0198	Time out
0202	No free FCB
0203	System DSA full
0204	NCB is in use
0205	No free file for SCB
0206	Link pointer broken
0207	Break PCB model
0208	Break PCB link

Error code	Meaning
0209	Out of range from PCB area
0210	Out of range from RCB area
0211	Out of range from queue area
0212	Out of range from queue area
0213	Out of range from SCB area
0214	Not found the queue header
0215	Not found the priority
0216	Check sum error
0217	Process status error
0235	In-line protocol error
0247	Stop in-line token

9-3. Operation prompt

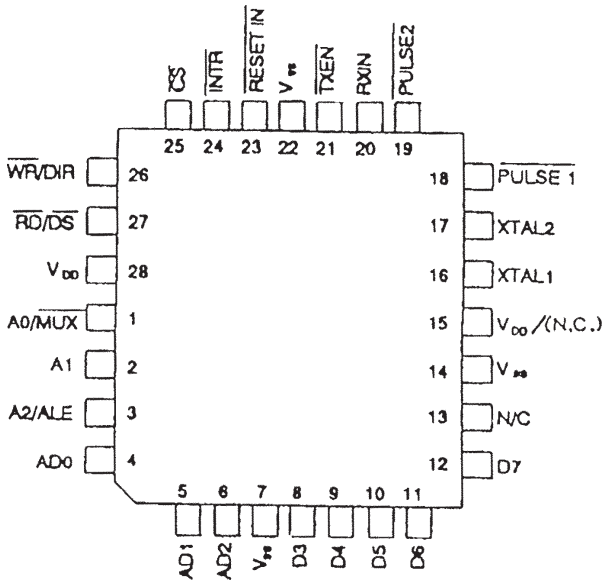
All prompt messages, together with descriptions and symbol characrer for printing on receipts, slip or reports are contained in the listbelow.

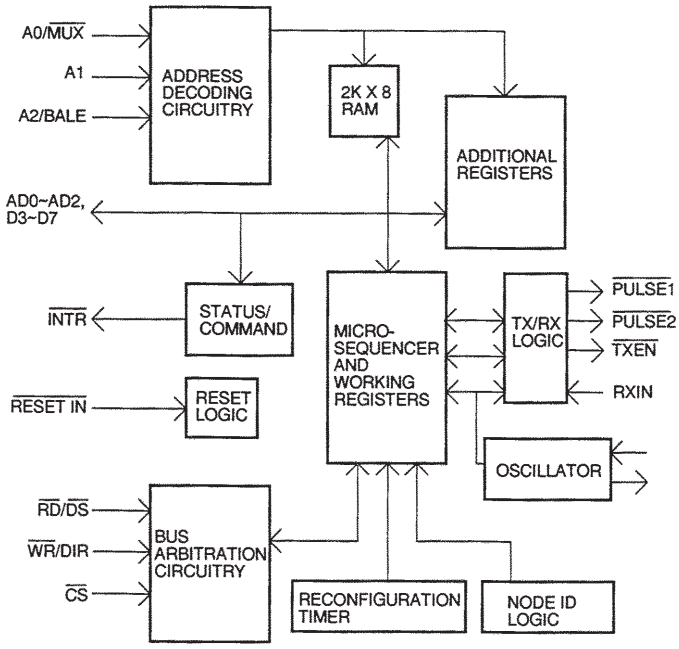
These messages connot be added, modified or deleted.

Prompt message	Meaning
Data cannot be printed out. Do you want to display?	Request to check the data which cannot be printed out.
Do you want to clear data?	Confirmation to reset displayed report.
Cancel OK?	Confirmation of all void operation.
Please wait.	Please wait. ECR now processing.
Item Consolidation Mode.	In the item consolidation mode.
Non Consolidation Mode.	Not in the item consolidation mode.
REG Mode	Mode change : REG mode
REFUND Mode	Mode change : RF mode
REG– Mode	Mode change : REG– mode
REG2 Mode	Mode change : REG 2 mode
Training	Training operator
Please Sign on.	Sign off
Enter Check/Table Number.	CHK# compulsory
Enter Table Number.	TBL# compulsory
Enter Number of covers.	Covers compulsory
Enter Seat Number	Seat# compulsory
Perform Slip Printing	Slip compulsory
Issue Guest Receipt.	GUEST RCT compulsory
Perform Validation Printing.	VLD compulsory
Perform Check Printing.	CHK-PRT compulsory
Perform Check Endorsement.	CHK-END compulsory
Operation Code?	Secret No entry for REG 2 mode.
The terminal losts system configuration. Execute reconfiguration procedure as soon as possible. OK ?	Requirement for system re-configuration.
This procedure stops system maximum 60 sec. OK ?	Alert before flash memory clear.

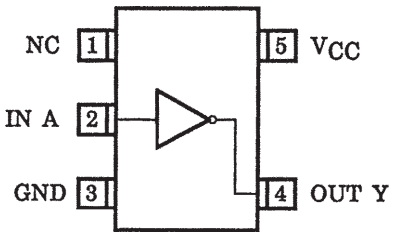
10. IC data

1. COM20030BILJP

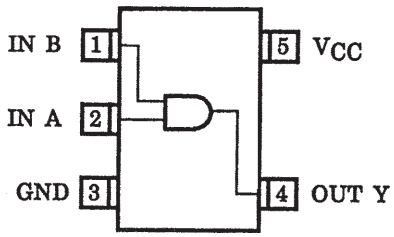




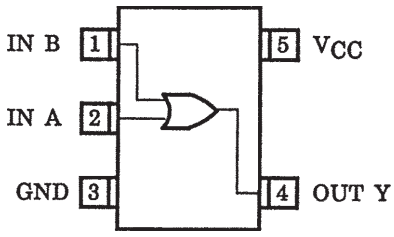
2. TC7S04F



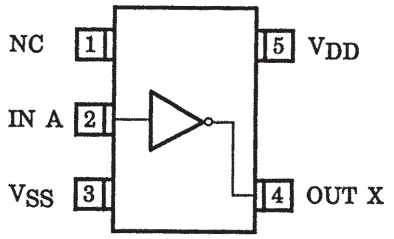
3. TC7S08F



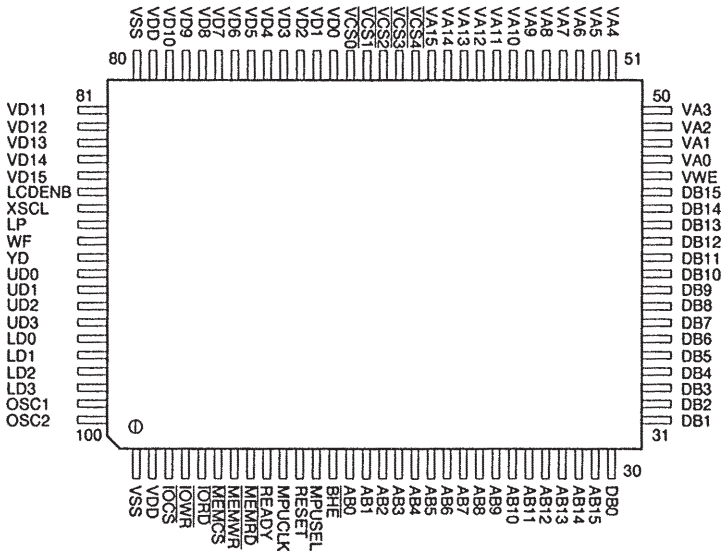
4. TC7S32F

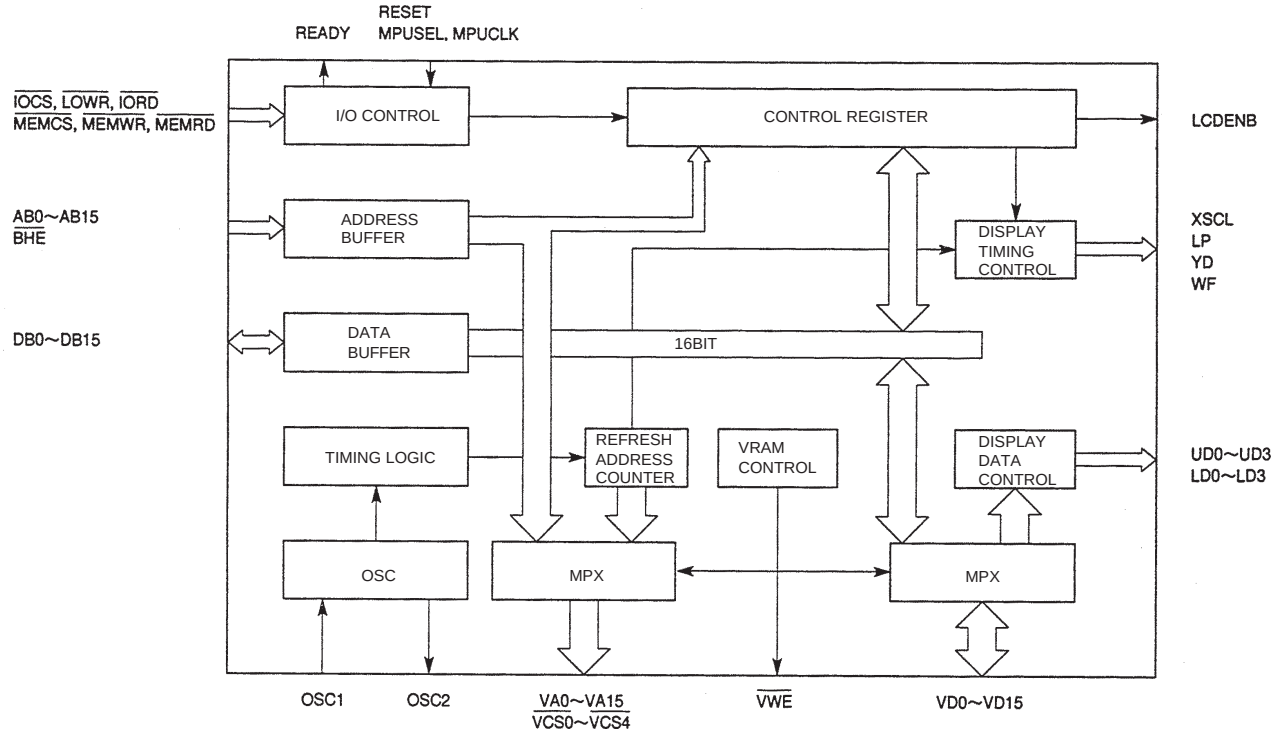


5. TC4SU69F

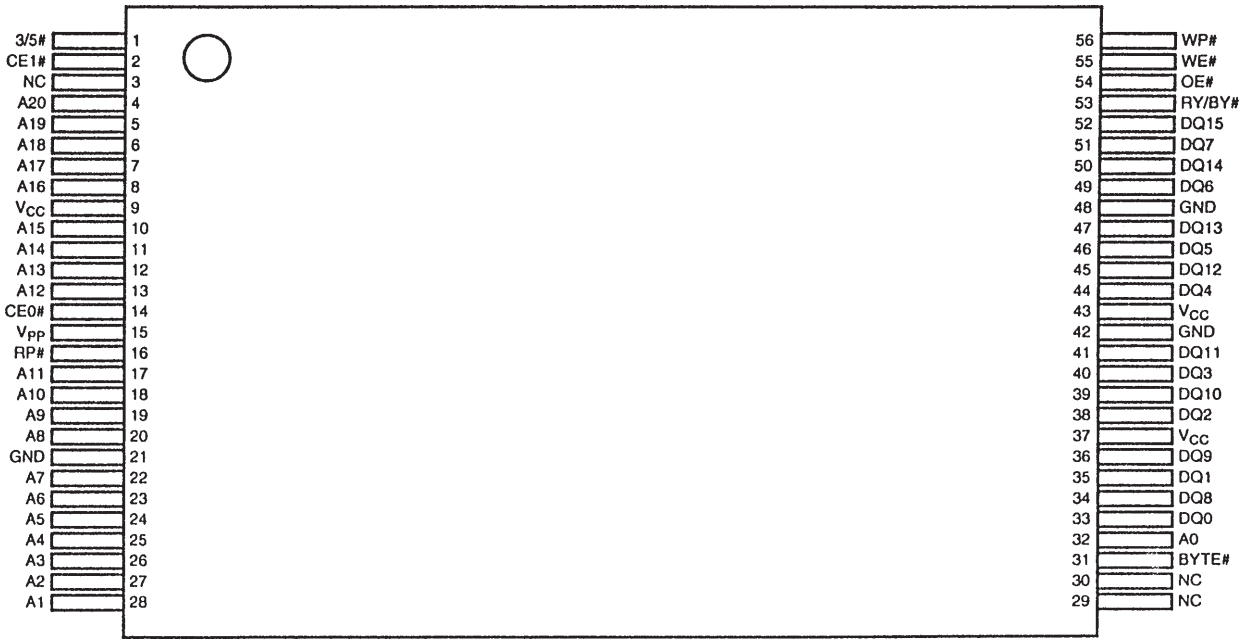


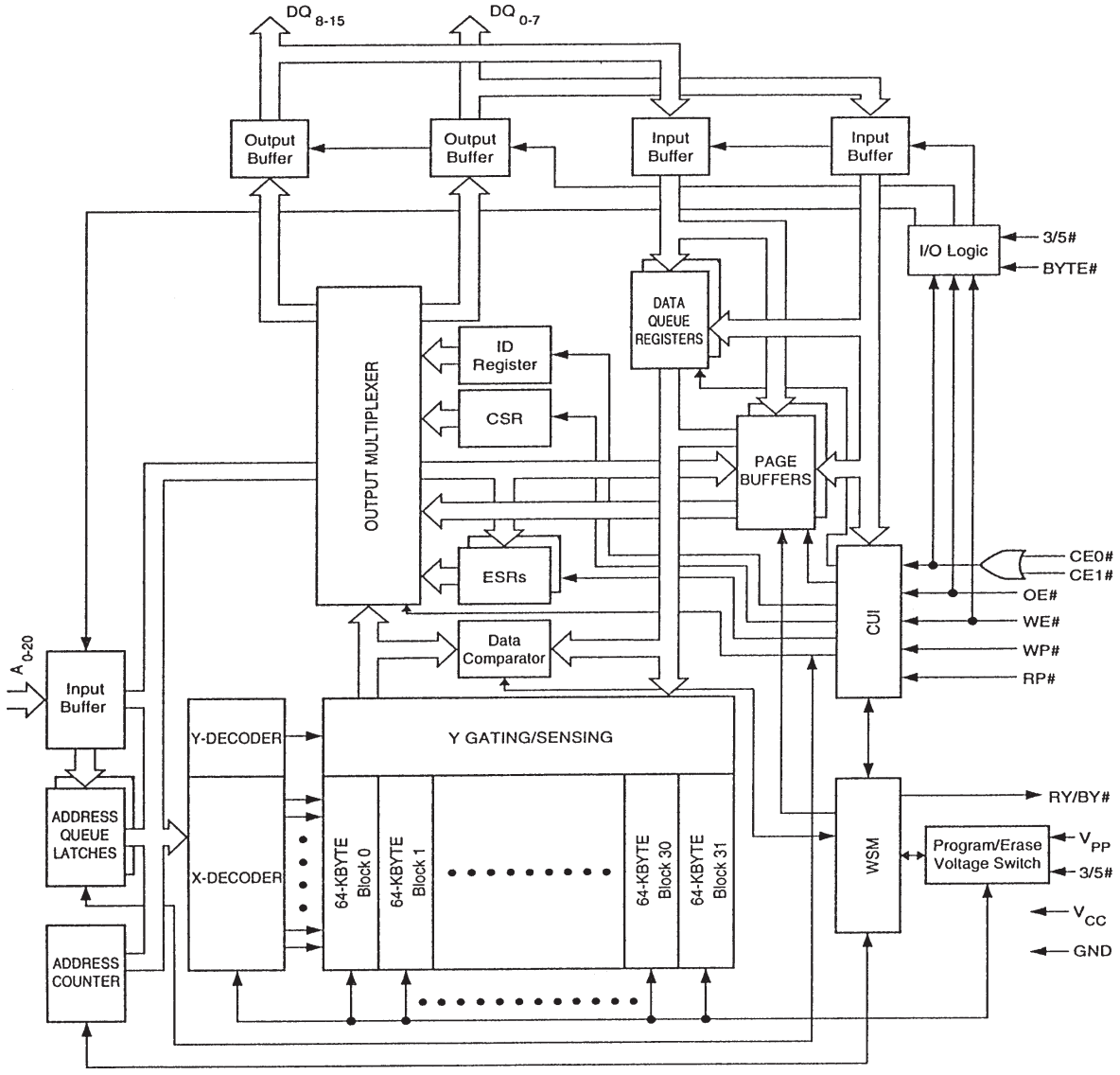
6. SED1351F0A



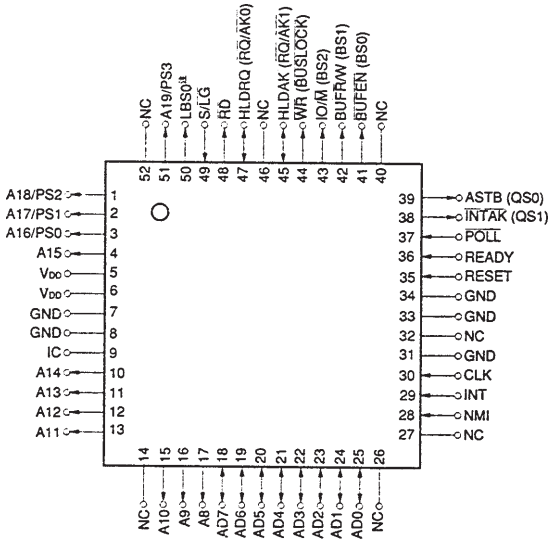


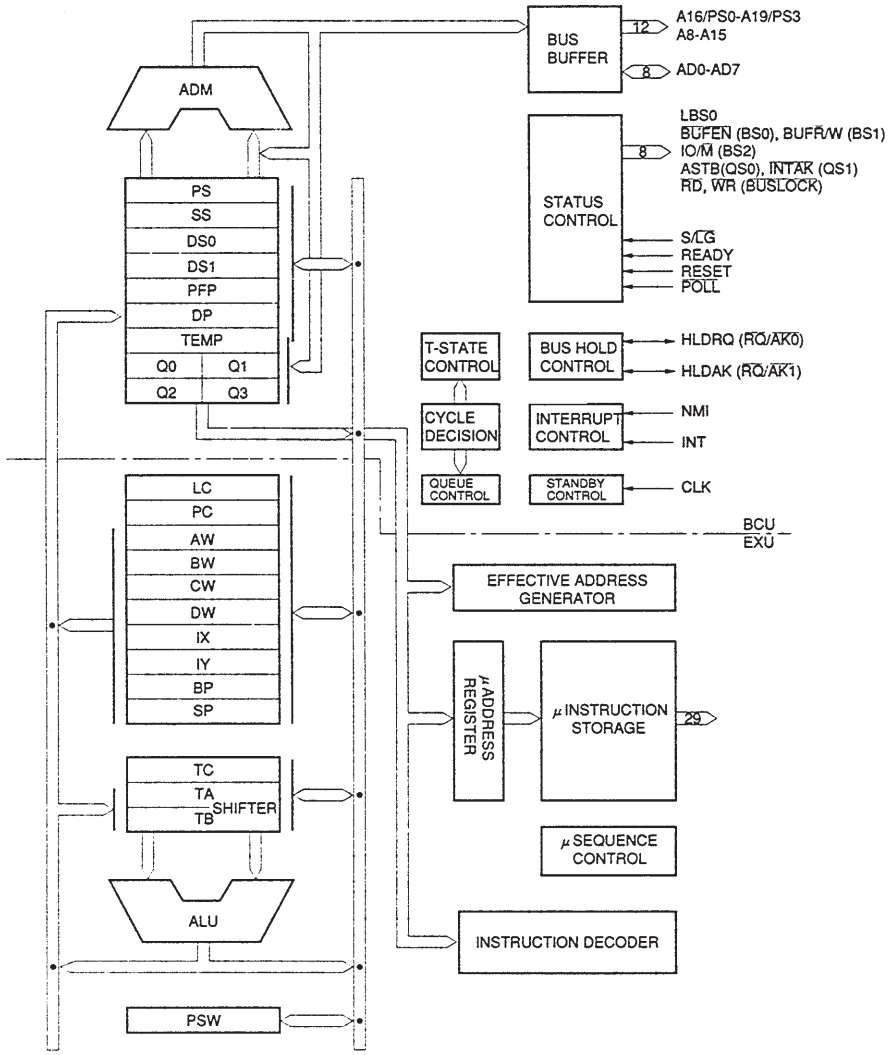
7. LH28F016SUT



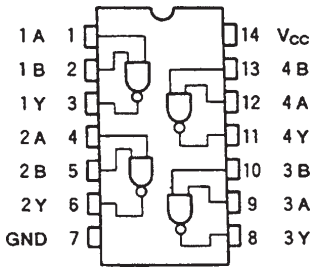


8. UPD70108HGC

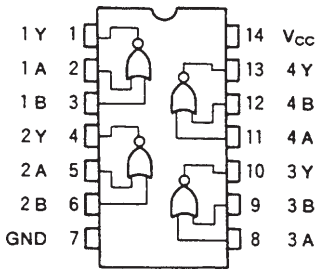




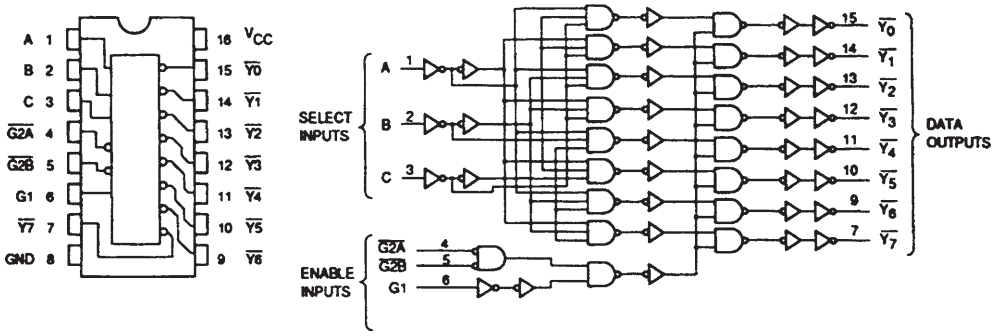
9. TC74HC00



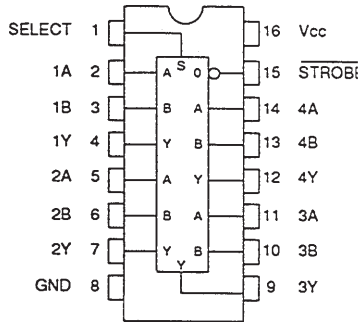
10. TC74HC02



11. TC74HC137



12. TC74HC157

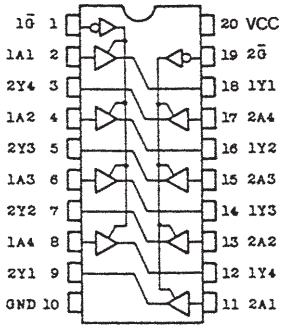


TRUTH TABLE

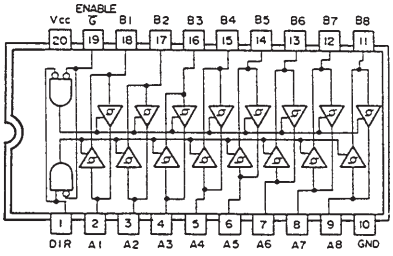
INPUTS				OUTPUTS
$\overline{\text{STROBE}}$	SELECT	A	B	Y(157)
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

X : DON'T CARE

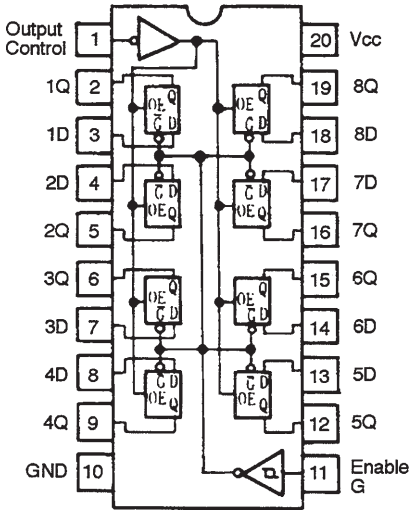
13. TC74HC244



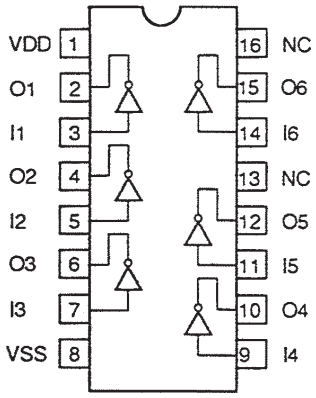
14. TC74HC245



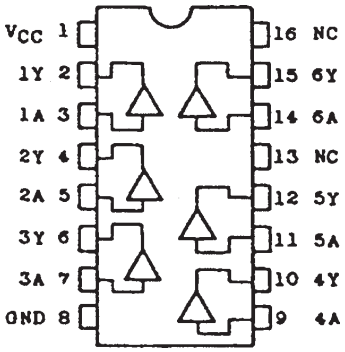
15. TC74HC373



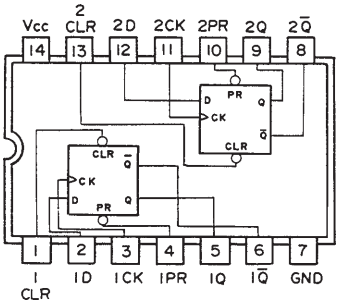
16. TC74HC4049



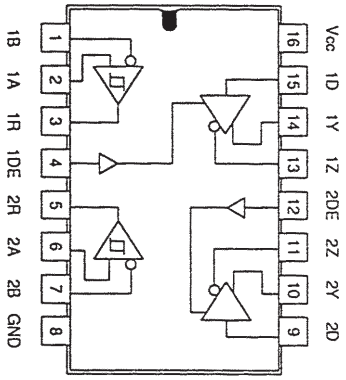
17. TC74HC4050



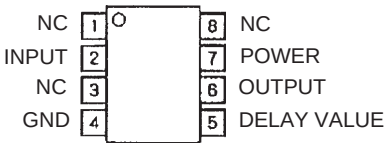
18. TC74HC74

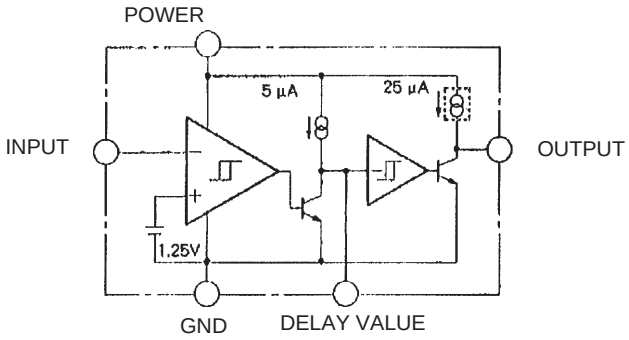


19. TC74HC751178

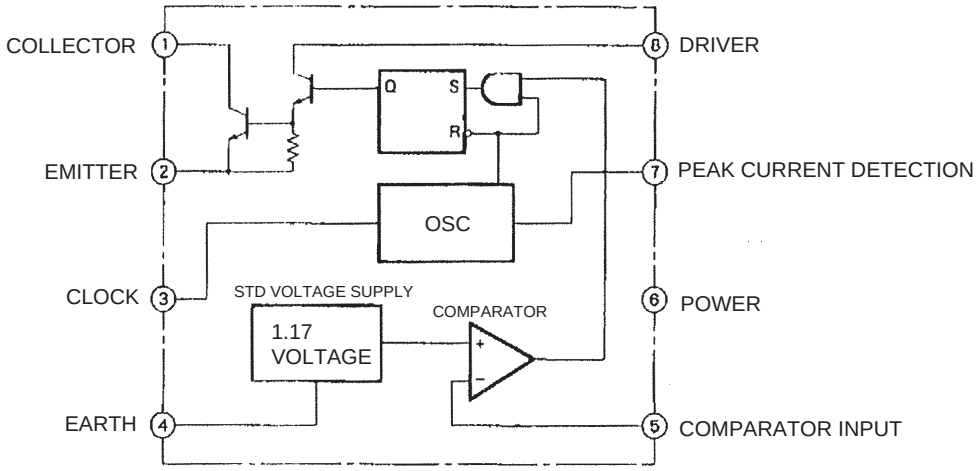


20. M51957BFP

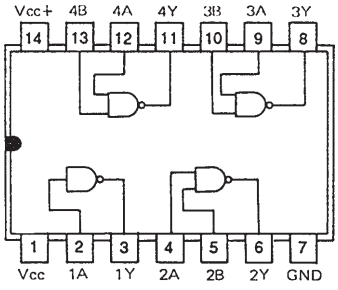




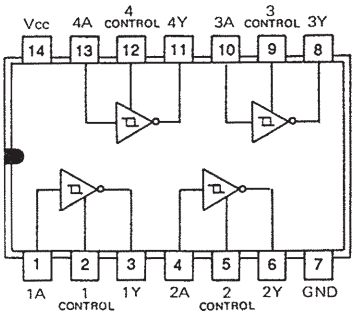
21. M5291FP



22. SN75188

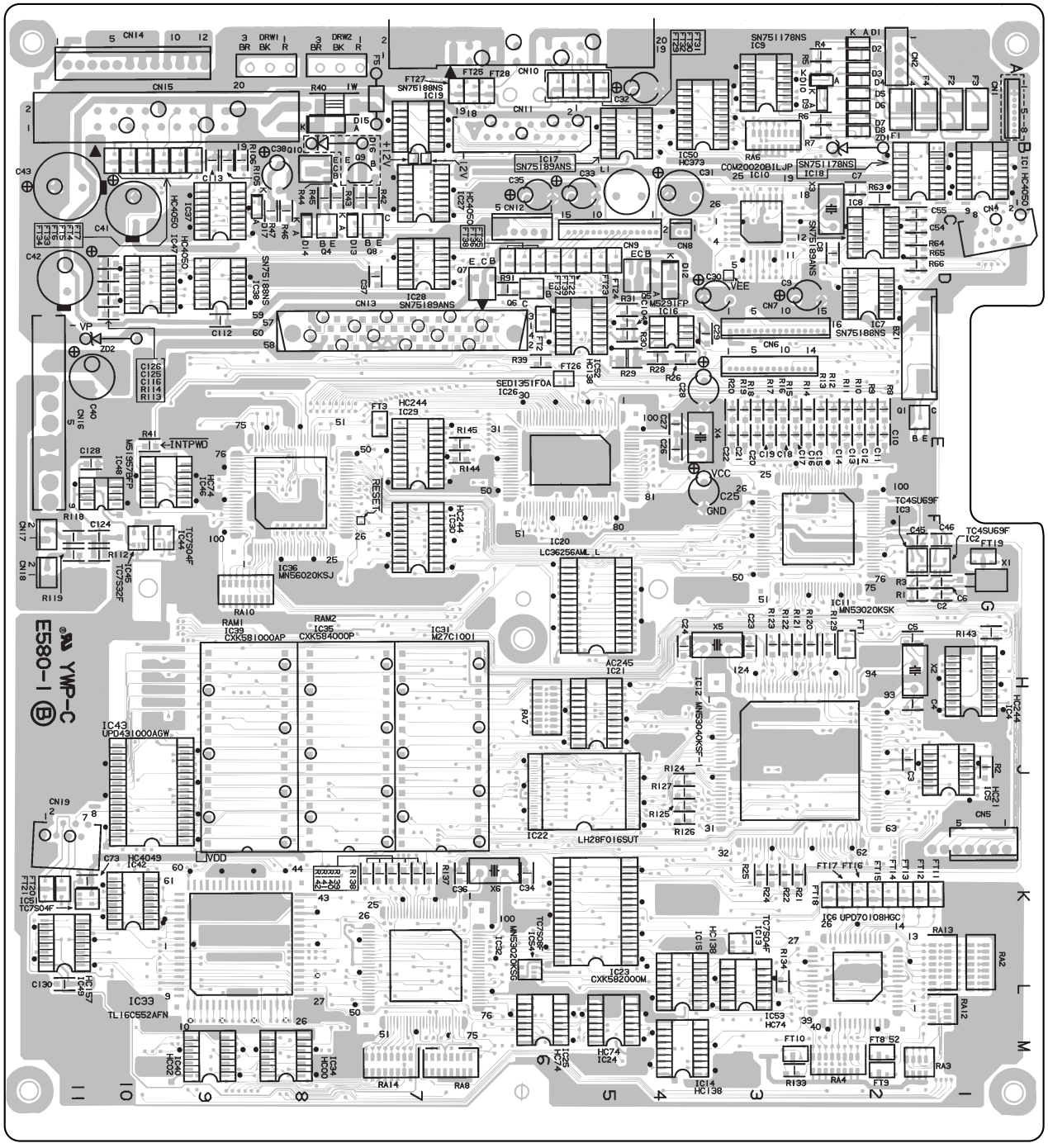


23. SN75189

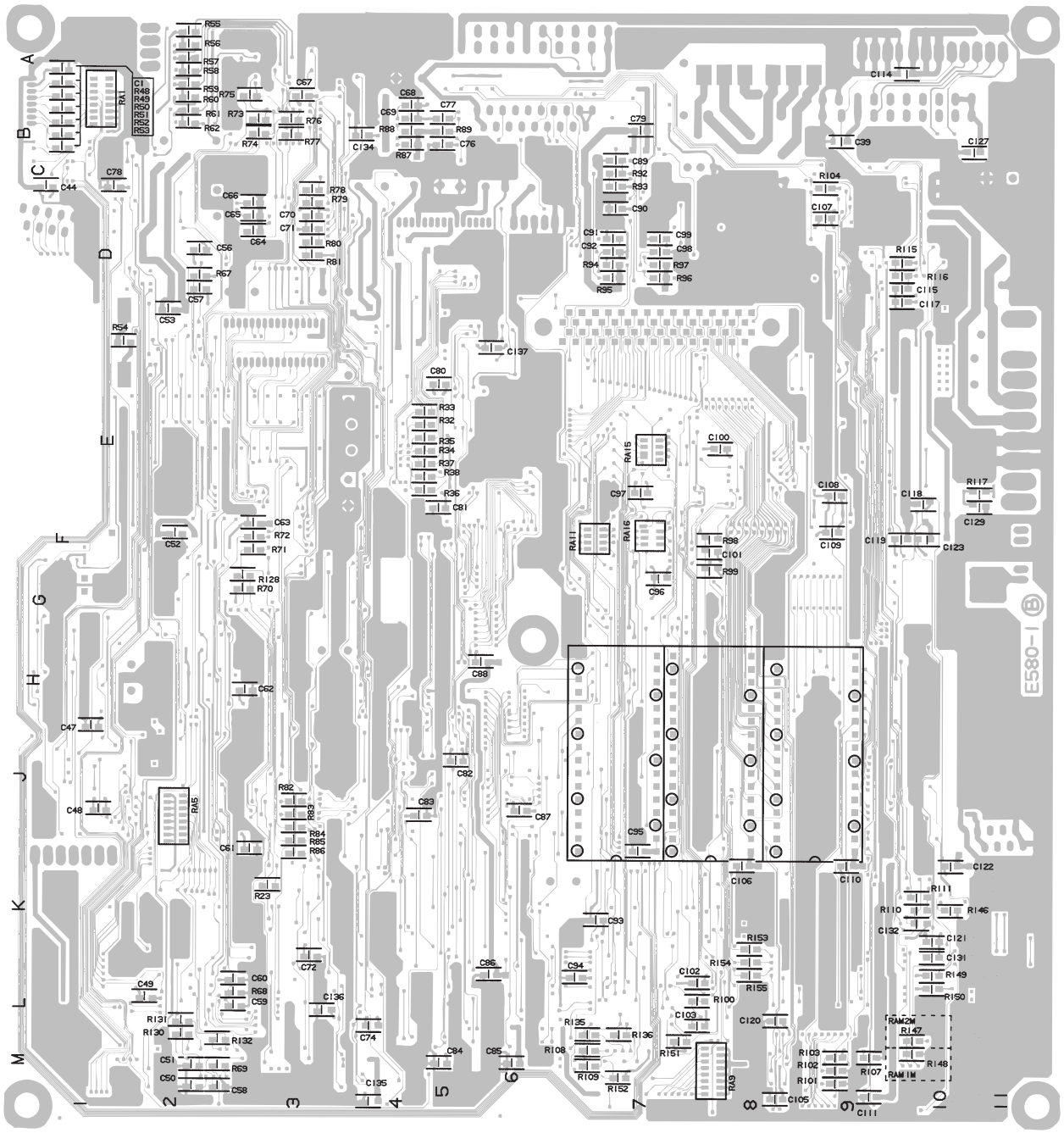


11.PCB LAYOUT

TOP VIEW



Bottom View



12.CIRCUIT DIAGRAM

CONTENTS

QT-2000

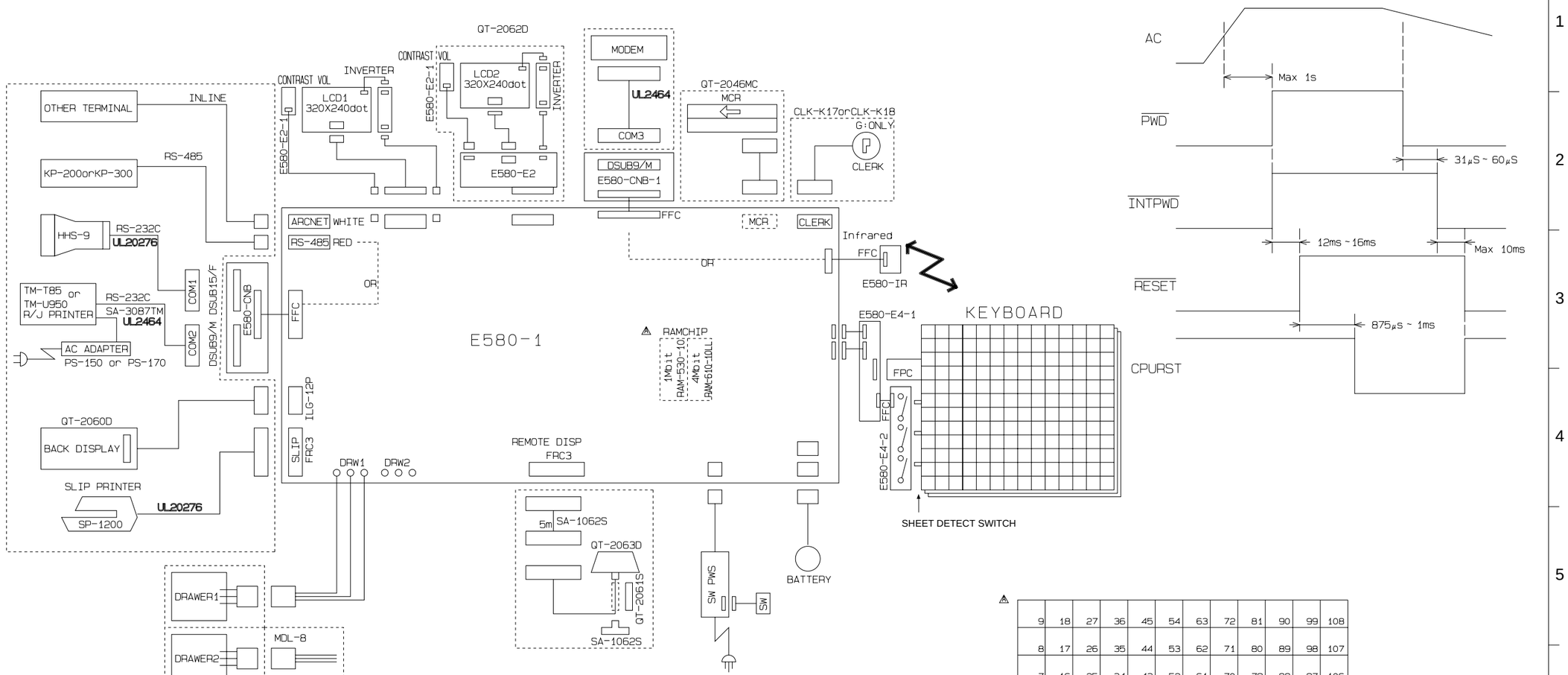
DESCRIPITION	DRAWING NO.	PRINTED BOARD NO.
BLOCK DIAGRAM	E240446	
MAIN PCB(1/9)	E140201	E580-1 (1/9)
MAIN PCB(2/9)	E140201	E580-1 (2/9)
MAIN PCB(3/9)	E140201	E580-1 (3/9)
MAIN PCB(4/9)	E240447	E580-1 (4/9)
MAIN PCB(5/9)	E240447	E580-1 (5/9)
MAIN PCB(6/9)	E240447	E580-1 (6/9)
MAIN PCB(7/9)	E240447	E580-1 (7/9)
MAIN PCB(8/9)	E240447	E580-1 (8/9)
MAIN PCB(9/9)	E240447	E580-1 (9/9)
KEY BOARD 1	E240448	
KEY BOARD 2	E440509	E580-E4-1
KEY SHEET SW	E440510	E580-E4-2
IR BOARD	E440511	E580-IR
VORUME	E440508	E580-E2-1
CONNECTOR BOARD	E440512	E580-CNB
2nd DISPLAY	E240449	E580-E2

REAR DISPLAY

DESCRIPITION	DRAWING NO.	PRINTED BOARD NO.
REAR DISPLAY	E-210838	E-404-2 (1/3)
REAR DISPLAY	E-310971	E-404-2 (2/3)
REAR DISPLAY	E-310972	E-404-2 (3/3)

SLIP PRINTER SP1200

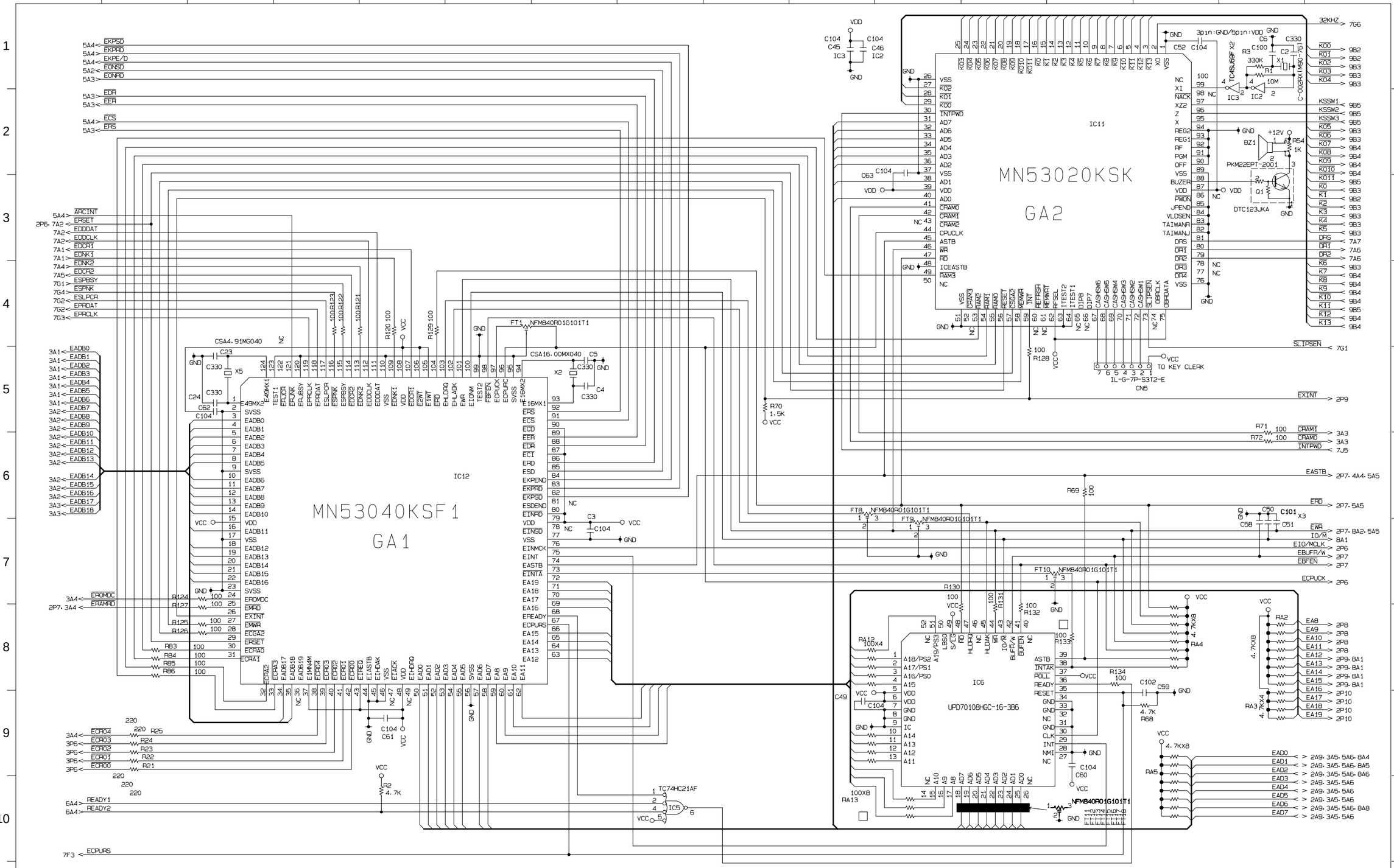
DESCRIPITION	DRAWING NO.	PRINTED BOARD NO.
BLOCK DIAGRAM		
SHP PRINTER (1/2)	E-210604	E-901-1
SHP PRINTER (2/2)	E-411006	E-901-1
ONNECTOR WIRING		

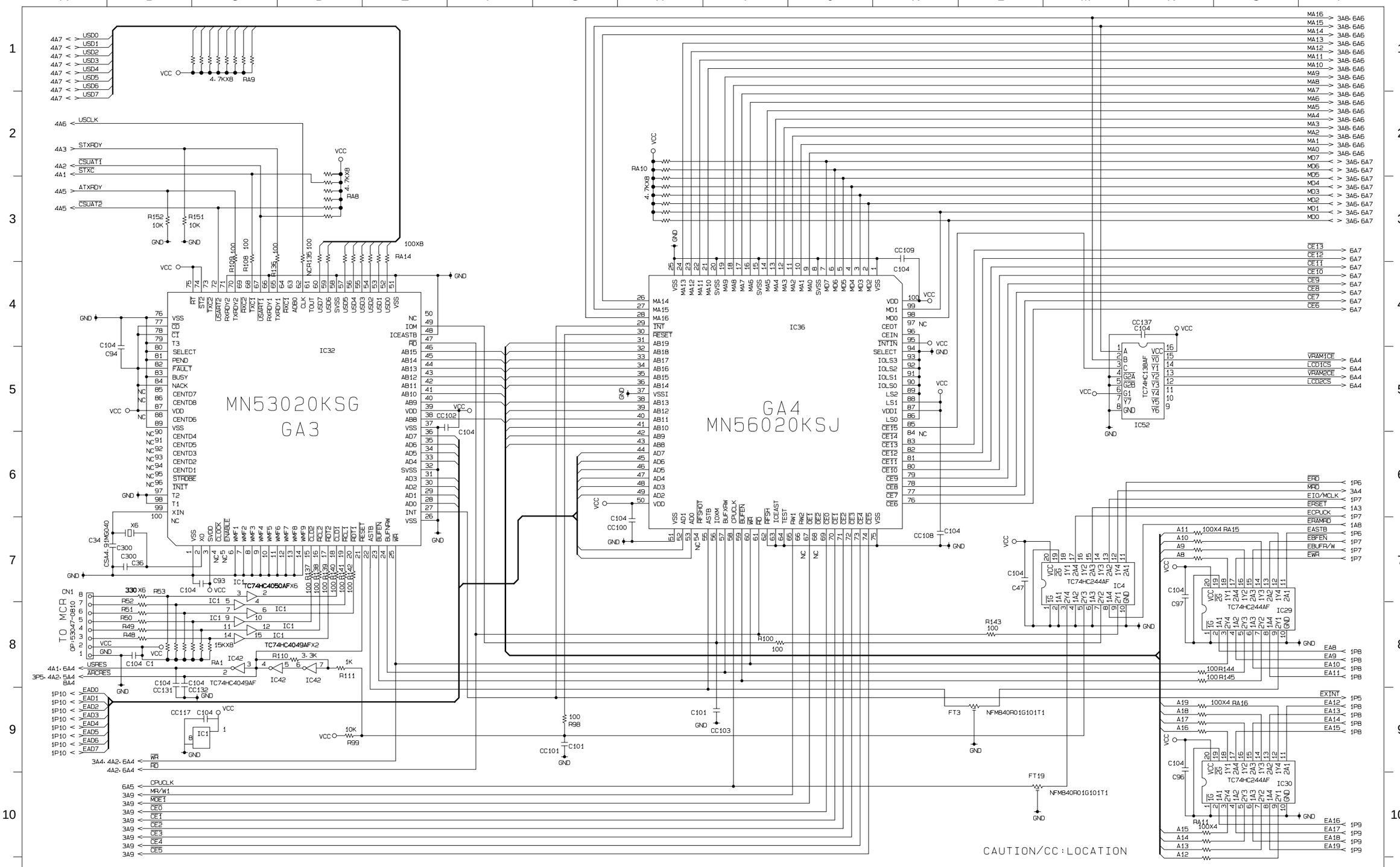


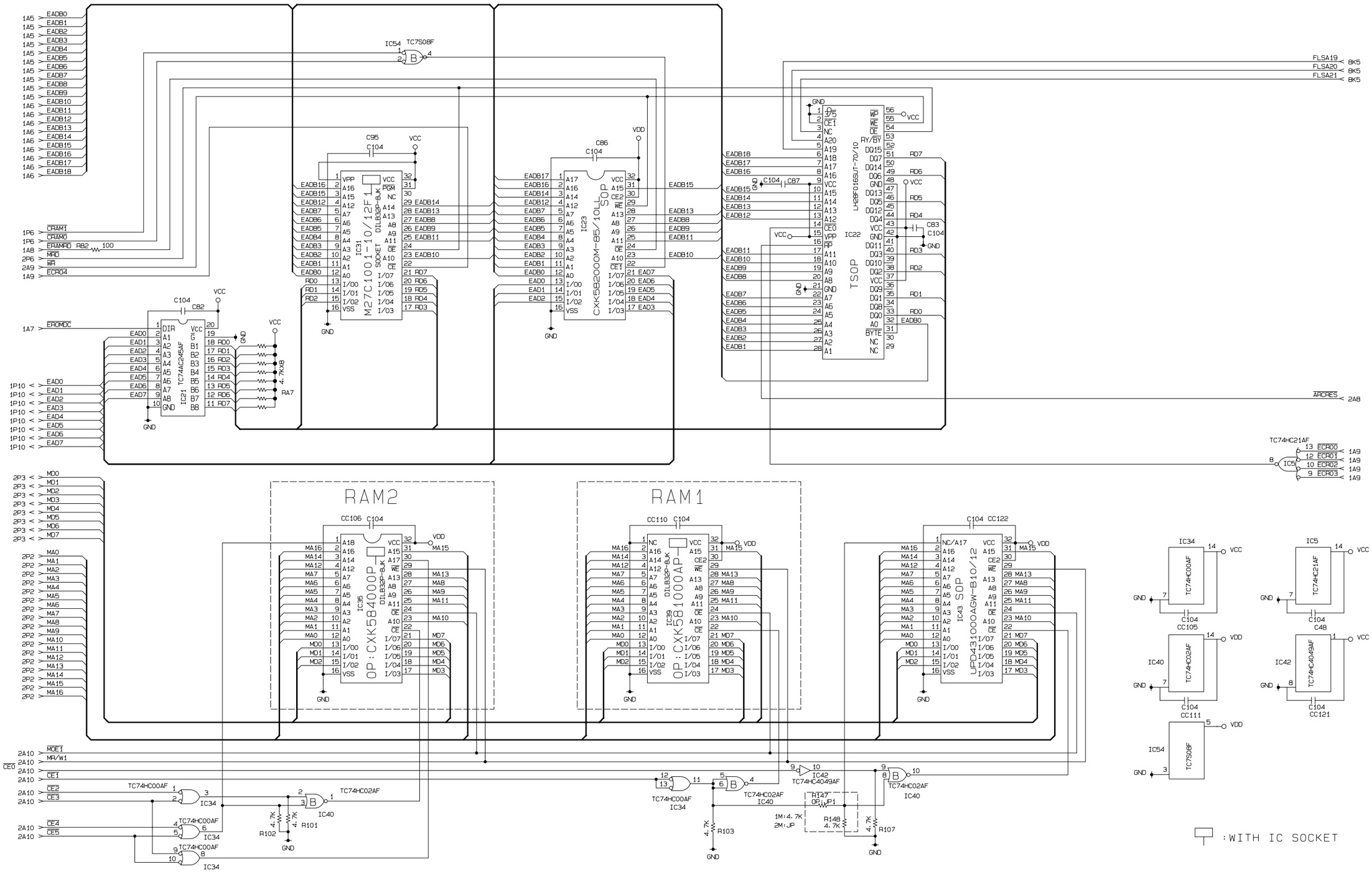
⚠

9	18	27	36	45	54	63	72	81	90	99	108
8	17	26	35	44	53	62	71	80	89	98	107
7	16	25	34	43	52	61	70	79	88	97	106
6	15	24	33	42	51	60	69	78	87	96	105
5	14	23	32	41	50	59	68	77	86	95	104
4	13	22	31	40	49	58	67	76	85	94	103
3	12	21	30	39	48	57	66	75	84	93	102
2	11	20	29	38	47	56	65	74	83	92	101
1	10	19	28	37	46	55	64	73	82	91	100
CLK# 5	REG. MODE	#/NS	MENU SHIFT	TABLE TRANS	NEW/OLD CHK	C	X	VOID	CANCEL	VAT	ESC/ SKIP
CLK# 4	X/Z MODE	ADD CHK	HOUSE BON	SEAT No.	COVERS	7	8	9	CH	RC	PD
CLK# 3	PGM. MODE	SEP CHK	NO	↑	PAGE UP	4	5	6	CR	SUB TOTAL	
CLK# 2	DISP ON/OFF	SUBST.	←	HOME	→	1	2	3	CHK	CASH/AMT TEND	
CLK# 1	—	%-	YES	↓	PAGE DOWN	0	00	.	GUEST RECEIPT	NB	

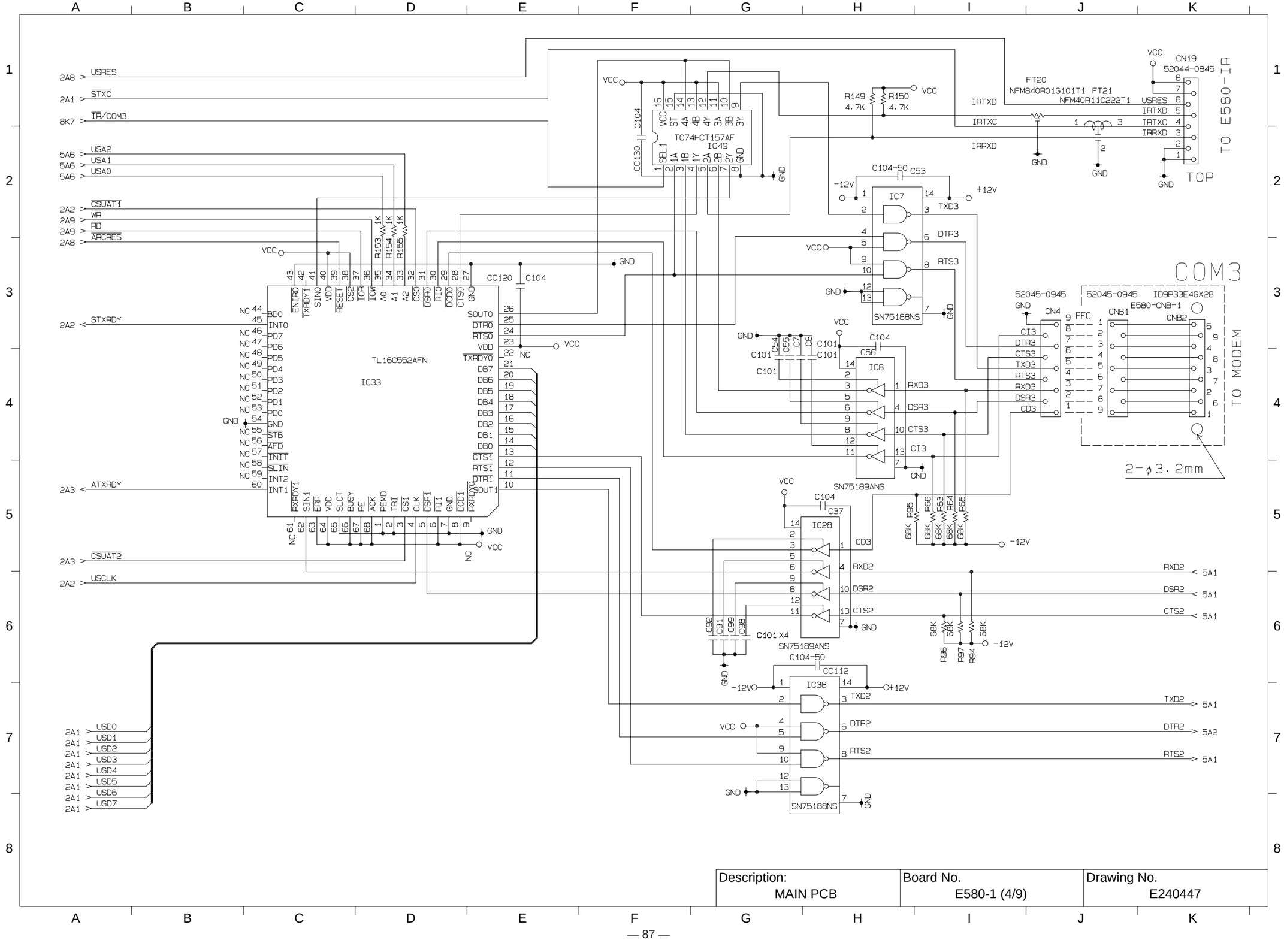
Description:	Board No.	Drawing No.
BLOCK DIAGRAM		E240446


IC12
MN53040KSF1
GA1
IC11
MN53020KSK
GA2
IC6
UPD70108HGC-16-3B6
IC5
TC74HC21AF
IC2
IC3
TC4SU69F
X1
X2
X3
C-002RX(M30-761)
BZ1
PKM22EPT-2001
Q1
DTC123JKA
TO KEY CLERK
IL-G-7P-S3T2-E
CN5
NFM840R01G101T1
CSA4.91MG040
CSA16.00MX040
32KHZ
SLIPSEN
EXINT
EASTB
ERD
EWR
IO/M
EIO/MCLK
EBUFR/W
EBFEN
ECPUCK
CRAMI
CRAMO
INTPWD
EROMDC
ERAMPD
ECPURS
READY1
READY2
EADB0
EADB1
EADB2
EADB3
EADB4
EADB5
EADB6
EADB7
EADB8
EADB9
EADB10
EADB11
EADB12
EADB13
EADB14
EADB15
EADB16
EADB17
EADB18
EKPSD
EKPRD
EKPE/D
EONSD
EONRD
EDR
EER
ECS
ERS
ARCINT
ERSET
EDDDAT
EDDCLK
EDCR1
EDNK1
EDNK2
EDCR2
ESPBSY
ESPNK
ESLPCR
EPPDAT
EPPCLK
ECRA4
ECRA3
ECRA2
ECRA1
ECRA0
KI0
KI1
KI2
KI3
KI4
KI5
KI6
KI7
KI8
KI9
KI10
KI11
KI12
KI13
KO0
KO1
KO2
KO3
KO4
KO5
KO6
KO7
KO8
KO9
KO10
KO11
KSSW1
KSSW2
KSSW3
DRS
DR1
DR2
DR3
DR4
EA8
EA9
EA10
EA11
EA12
EA13
EA14
EA15
EA16
EA17
EA18
EA19
EAD0
EAD1
EAD2
EAD3
EAD4
EAD5
EAD6
EAD7
R70 1.5K
R71 100
R72 100
R69 100
R54 1K
R68 4.7K
R2 4.7K
R128 100
R130 100
R131 100
R132 100
R133 100
R134 100
R12 100X4
R13 100X8
4.7KX8
4.7KX4
10M
330K
C330
C104
C45
C46
C52
C63
C23
C24
C62
C61
C60
C59
C58
C50
C51
C49
C101 X3
C102
C2
C5
C4
C3
VDD
VCC
GND
+12V
3pin:GND/5pin:VDD
Description:
MAIN PCB
Board No.
E580-1 (1/9)
Drawing No.
E140201

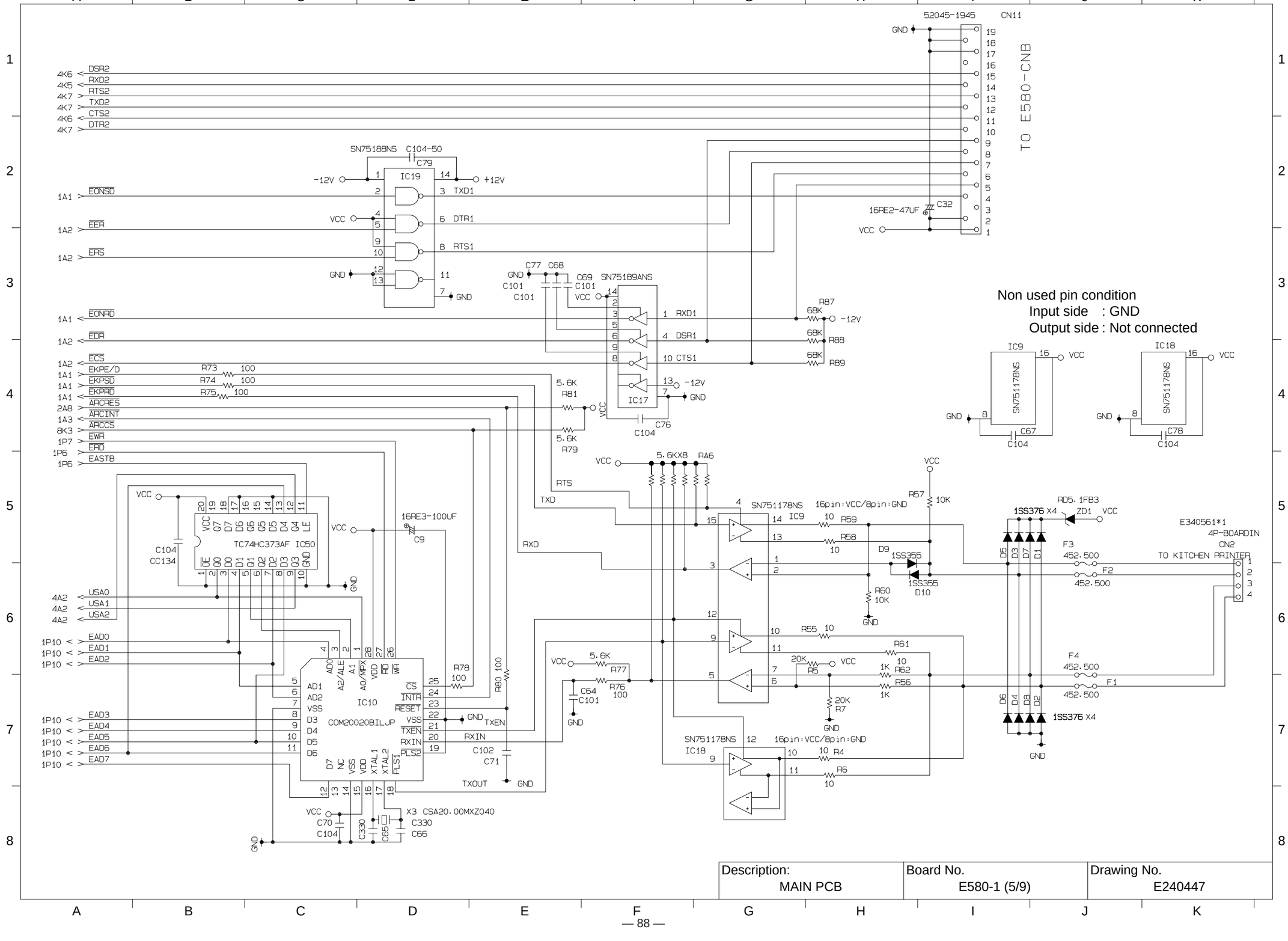

IC32
MN53020KSG
GA3
IC36
GA4
MN56020KSJ
IC52
TC74HC138AF
IC4
TC74HC244AF
IC29
IC30
IC1
TC74HC4050AF
IC42
TC74HC4049AF
CN1
TO MCR
CP:5047-0810
USCLK
STXRDY
CSUAT1
STXC
ATXRDY
CSUAT2
VCC
GND
4.7KX8
RA9
RA8
RA14
100XB
100X4 RA15
100X4 RA16
RA11
CPUCLK
MR/W1
MOE1
CAUTION/CC:LOCATION
Description:
MAIN PCB
Board No.
E580-1 (2/9)
Drawing No.
E140201



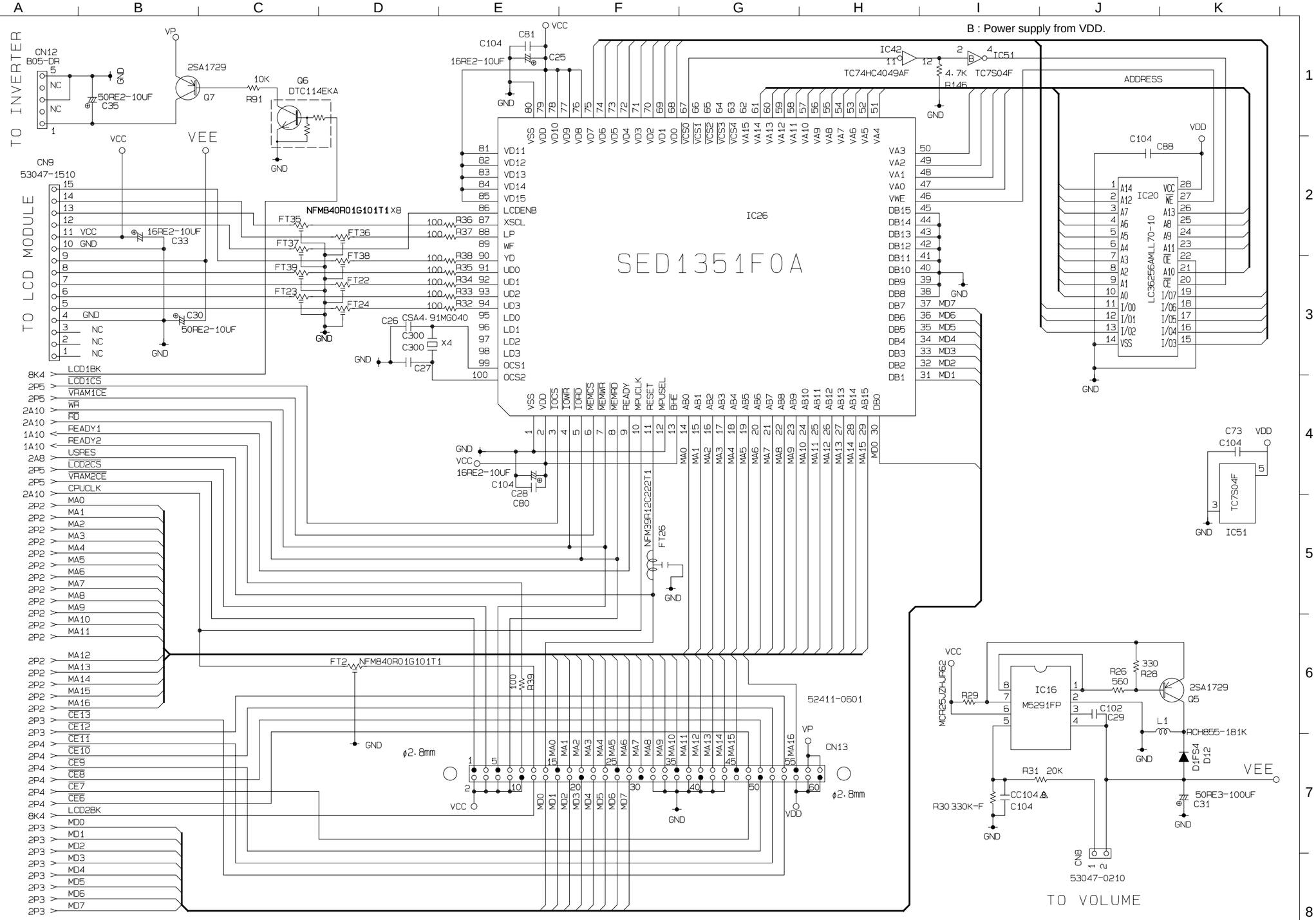
Description:	Board No.	Drawing No.
MAIN PCB	E580-1 (3/9)	E140201



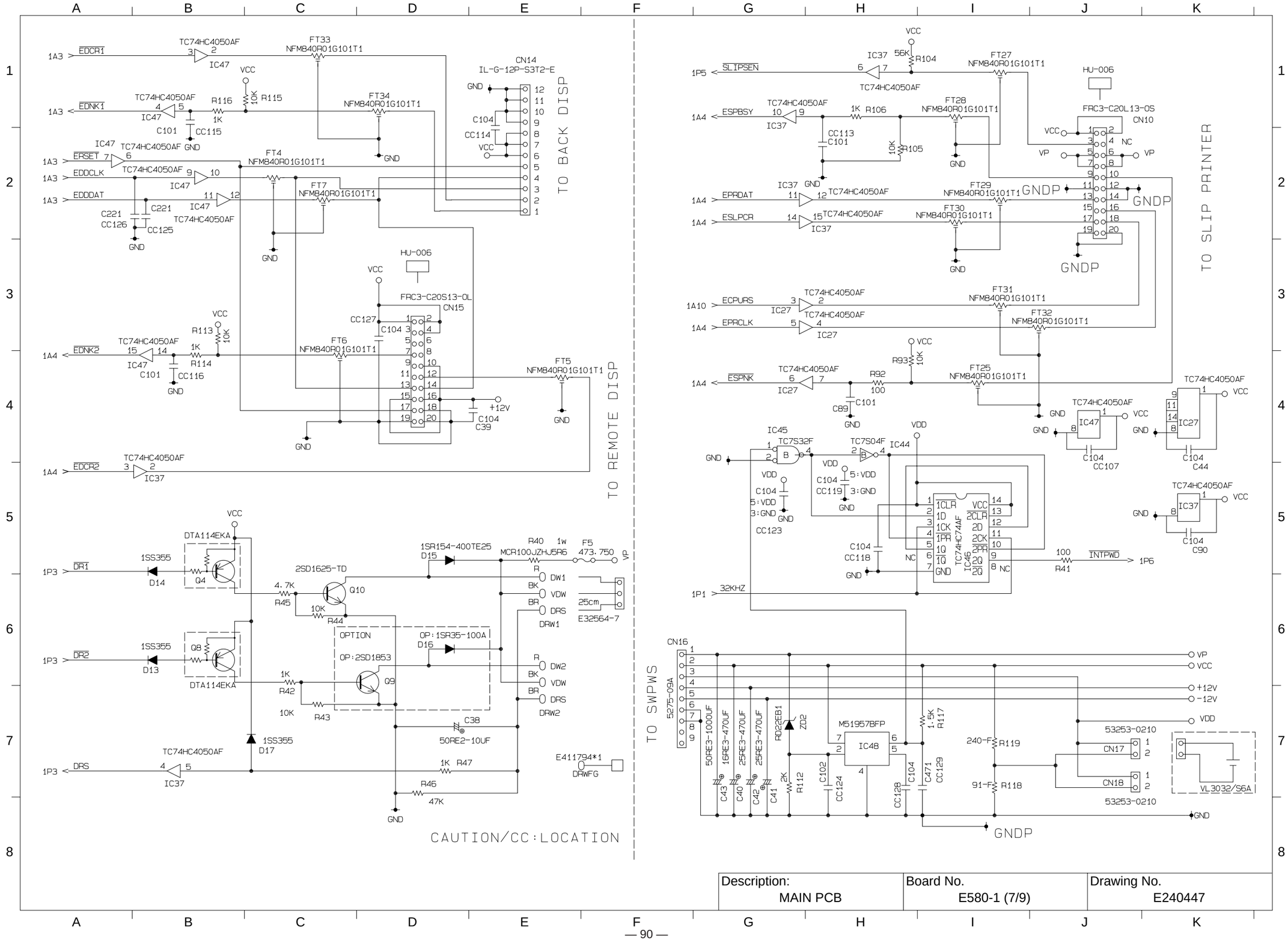
Description:	Board No.	Drawing No.
MAIN PCB	E580-1 (4/9)	E240447

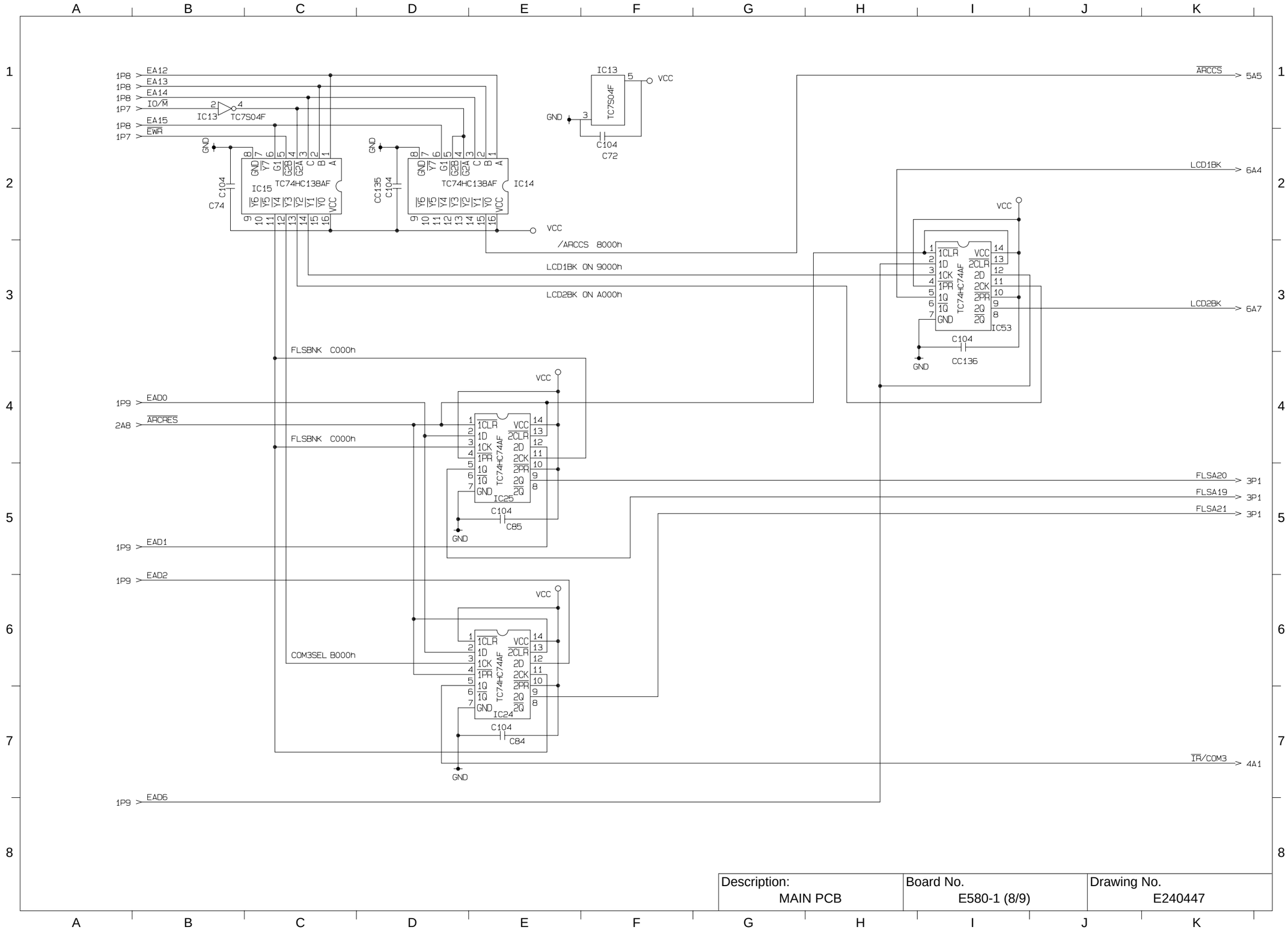

52045-1945
CN11
TO E580-CNB
DSR2
RXD2
RTS2
TXD2
CTS2
DTR2
SN75188NS
C104-50
C79
IC19
-12V
+12V
TXD1
DTR1
RTS1
EONSD
EER
ERS
C77
C68
C69
C101
SN75189ANS
IC17
RXD1
DSR1
CTS1
R87
R88
R89
68K
EONRD
EDR
ECS
EKPE/D
EKPSD
EKPRD
ARCRES
ARCINT
ARCCS
EWR
ERD
EASTB
R73
R74
R75
100
5.6K
R81
R79
C104
C76
5.6KX8
RA6
RTS
TXD
RXD
SN751178NS
IC9
16pin:VCC/8pin:GND
R59
R58
R57
10K
D9
1SS355
D10
R60
C32
16RE2-47UF
RD5.1FB3
1SS376 X4
ZD1
E340561*1
4P-BOARDIN
CN2
TO KITCHEN PRINTER
F3
F2
F4
F1
452.500
R55
R61
R62
R56
R5
R7
20K
1K
10
IC18
R4
R6
USA0
USA1
USA2
EAD0
EAD1
EAD2
EAD3
EAD4
EAD5
EAD6
EAD7
TC74HC373AF
IC50
C104
CC134
16RE3-100UF
C9
IC10
COM20020BILJP
R78
R80
100
C64
C101
R77
R76
C102
C71
TXEN
RXIN
TXOUT
X3 CSA20.00MXZ040
C70
C330
C65
C66
Non used pin condition
Input side : GND
Output side : Not connected
IC9
IC18
SN751178NS
C67
C78
C104
VCC
GND
Description:
MAIN PCB
Board No.
E580-1 (5/9)
Drawing No.
E240447

B : Power supply from VDD.

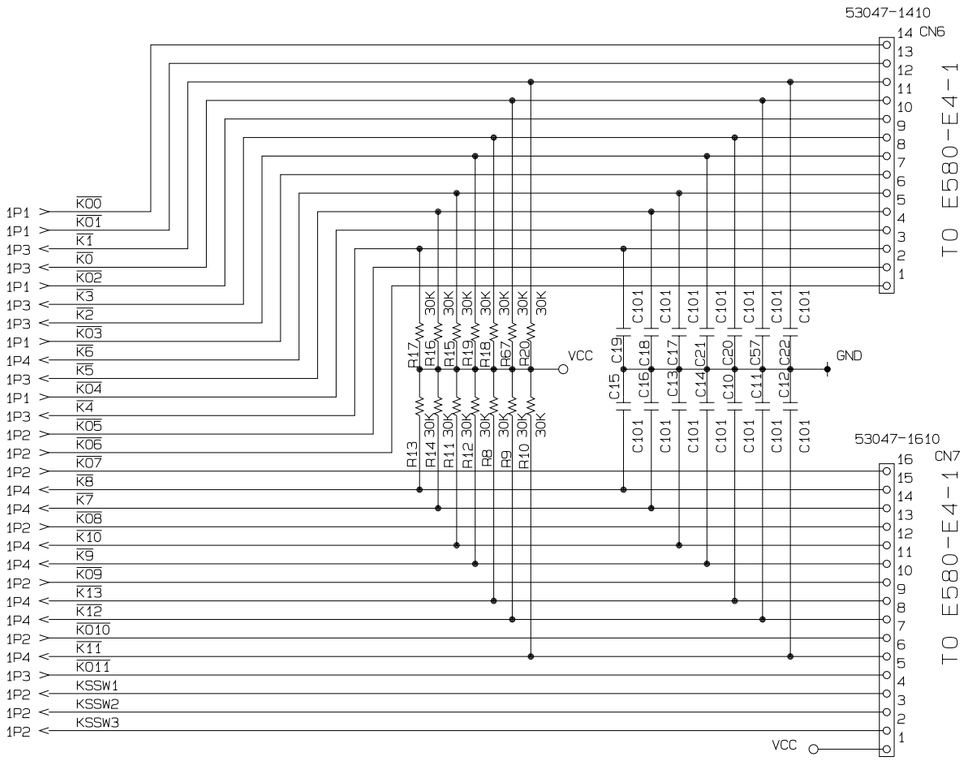


Description:	Board No.	Drawing No.
MAIN PCB	E580-1 (6/9)	E240447

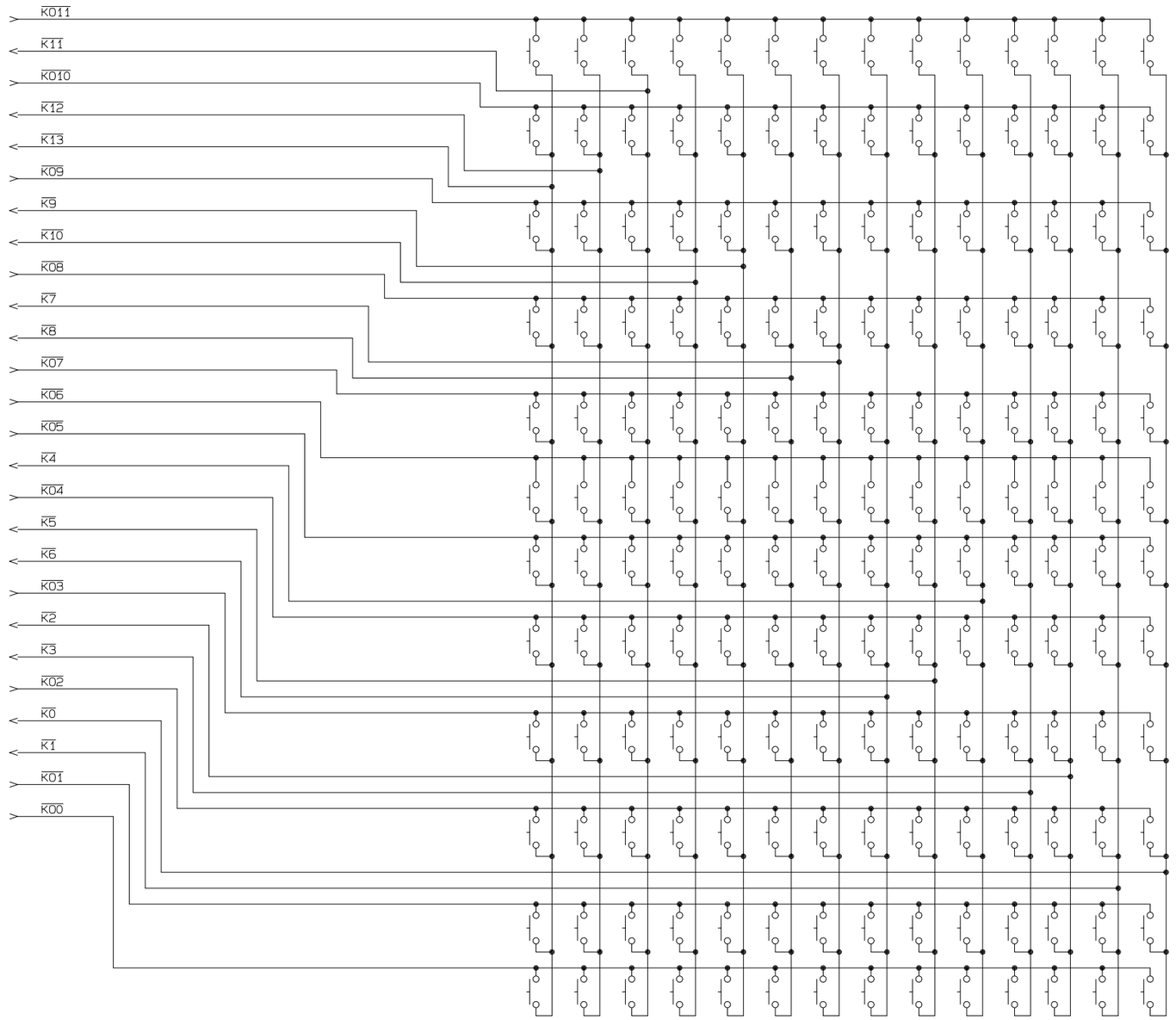

TO BACK DISP
TO REMOTE DISP
TO SLIP PRINTER
TO SWPWS
CAUTION/CC:LOCATION
EDCR1
EDNK1
ERSET
EDDCLK
EDDDAT
EDNK2
EDCR2
DR1
DR2
DRS
SLIPSEN
ESPBSY
EPRDAT
ESLPCR
ECPURS
EPRCLK
ESPNK
32KHZ
INTPWD
TC74HC4050AF
TC74HC4050AF
TC7S32F
TC7S04F
TC74HC74AF
M51957BFP
CN14
IL-G-12P-S3T2-E
FRC3-C20S13-OL
CN15
HU-006
FRC3-C20L13-OS
CN10
CN16
5275-09A
53253-0210
CN17
CN18
VL3032/S6A
1SS355
DTA114EKA
1SR154-400TE25
MCR100JZHJ5R6
2SD1625-TD
2SD1853
RD22EB1
ZD2
E32564-7
E411794*1
GNDP
VCC
VDD
VP
NC
+12V
-12V
OPTION
OP:1SR35-100A
OP:2SD1853
25cm
Description:
MAIN PCB
Board No.
E580-1 (7/9)
Drawing No.
E240447



Description:	Board No.	Drawing No.
MAIN PCB	E580-1 (8/9)	E240447



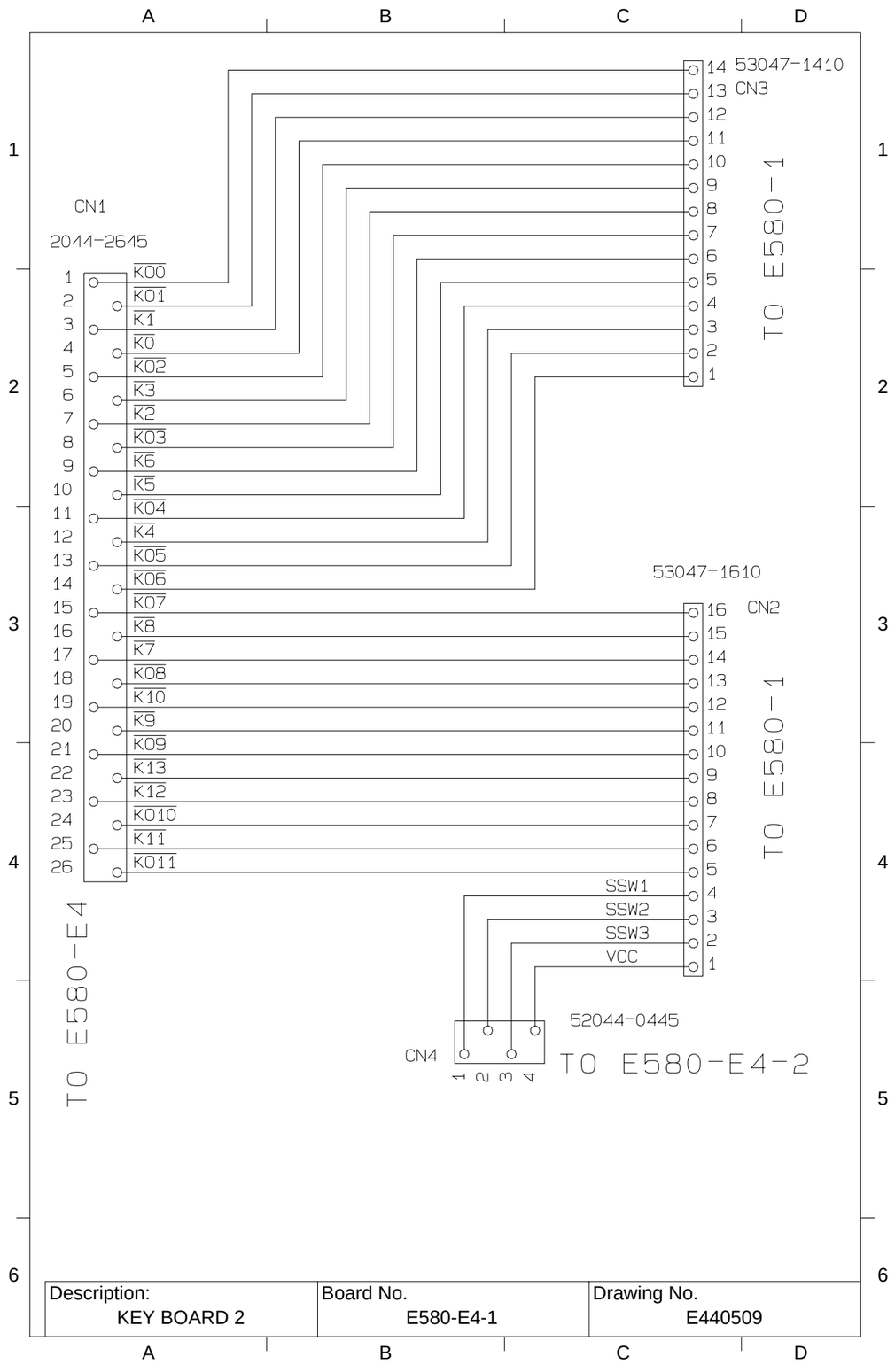
Description:	Board No.	Drawing No.
MAIN PCB	E580-1 (9/9)	E240447

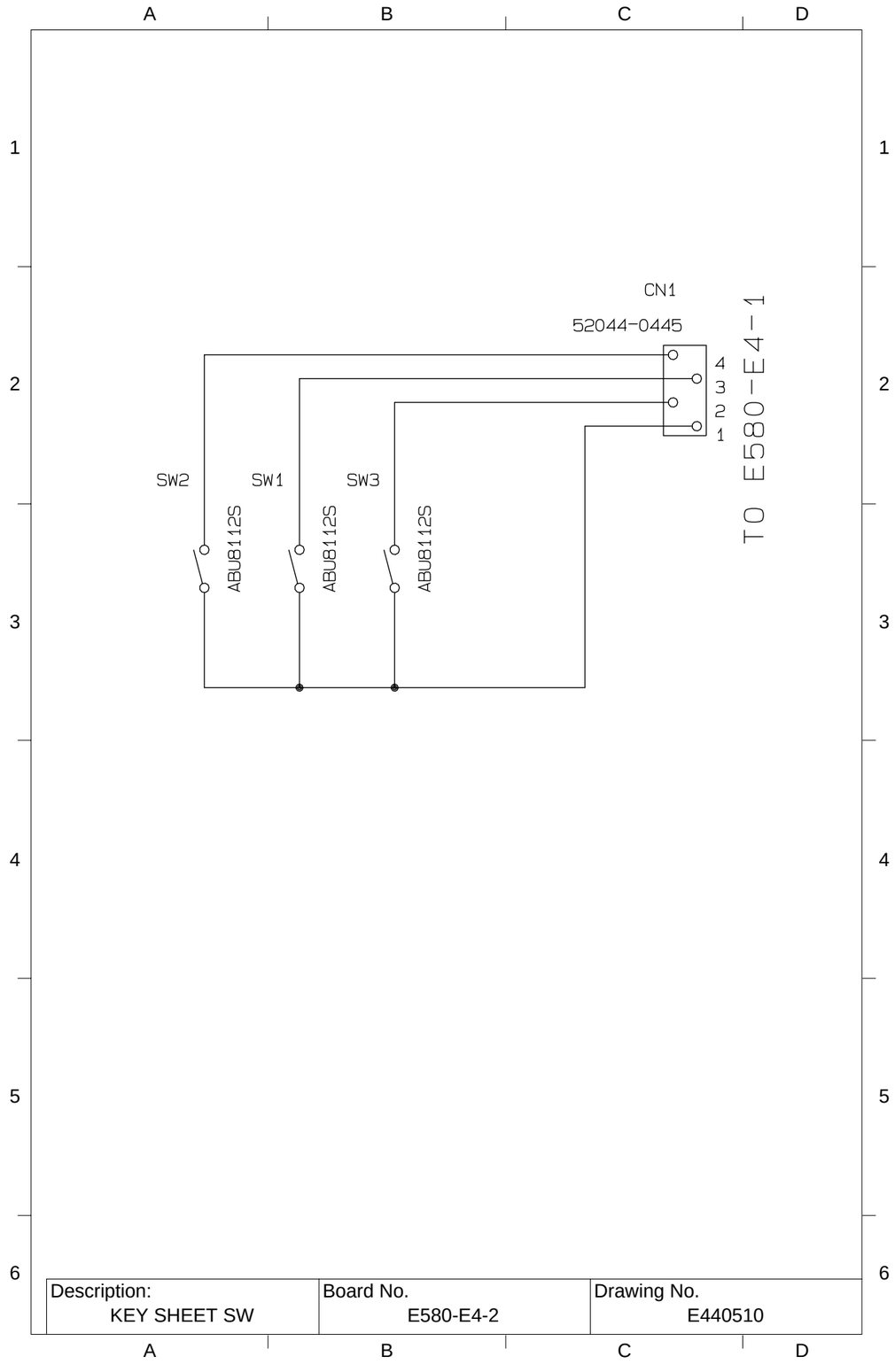


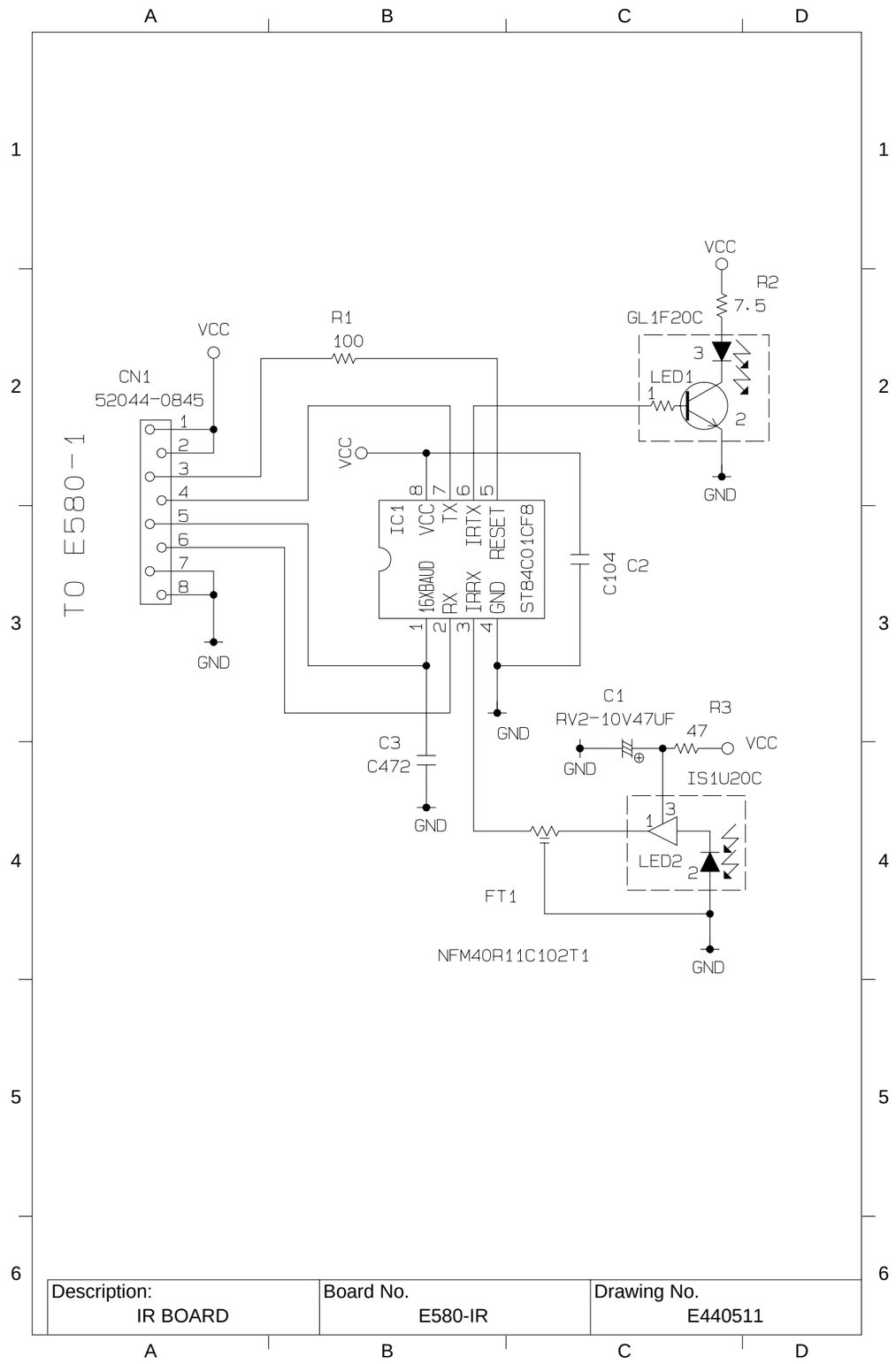
KEY BOARD CONTACT POSITION

168	167	166	165	164	163	162	161	160	159	158	157	156	155	
154	153	152	151	150	149	148	147	146	145	144	143	142	141	
140	139	138	137	136	135	134	133	132	131	130	129	128	127	
126	125	124	123	122	121	120	119	118	117	116	115	114	113	
112	111	110	109	108	107	106	105	104	103	102	101	100	99	
98	97	96	95	94	93	92	91	90	89	88	87	86	85	
84	83	82	81	80	79	78	77	76	75	74	73	72	71	
70	69	68	67	66	65	64	63	62	61	60	59	58	57	
56	55	54	53	52	51	50	49	48	47	46	45	44	43	
42	41	40	39	38	37	36	35	34	33	32	31	30	29	
28	27	26	25	24	23	22	21	20	19	18	17	16	15	
14	13	12	11	10	9	8	7	6	5	4	3	2	1	

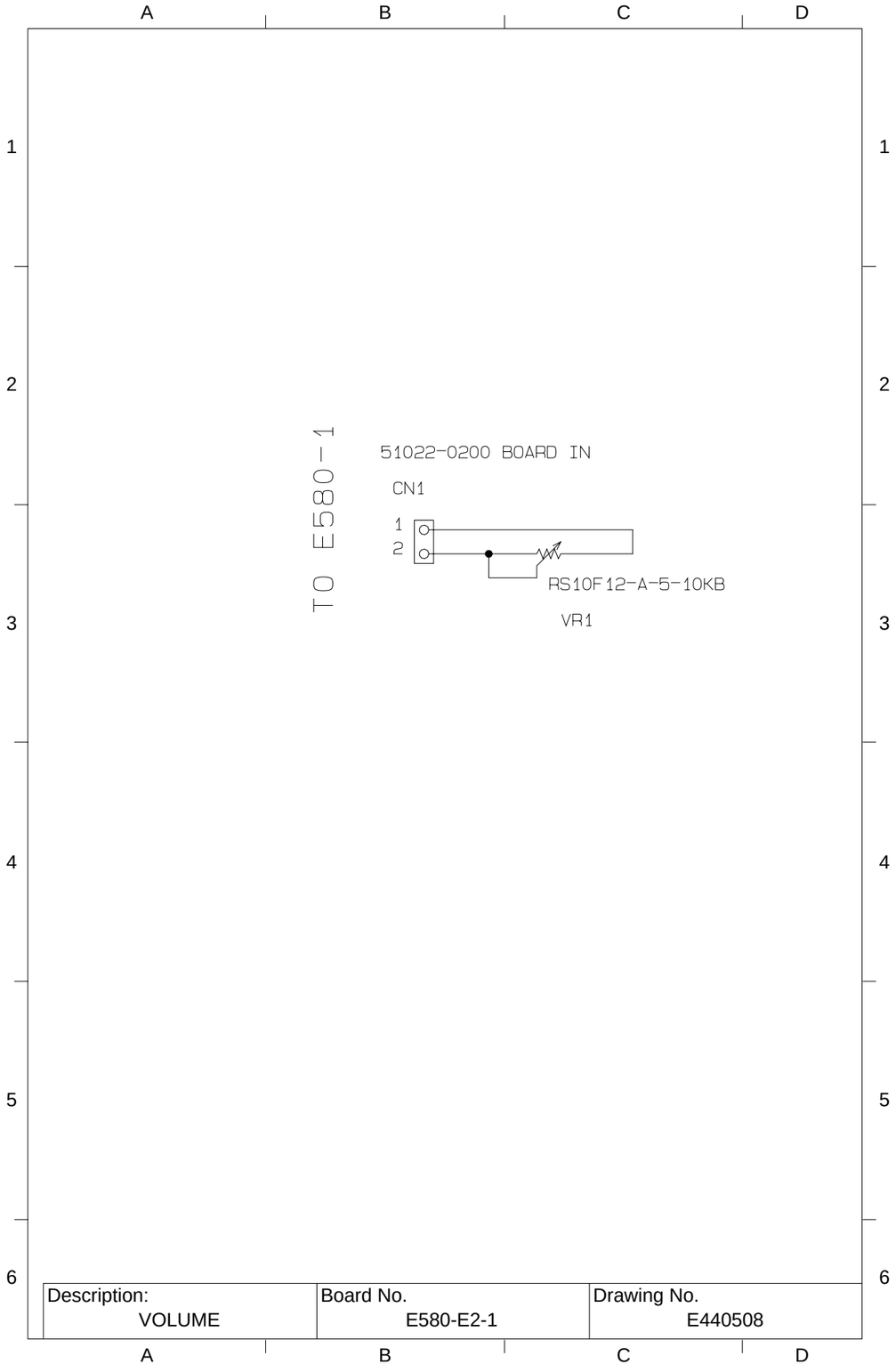
Description:	Board No.	Drawing No.
KEY BOARD 1		E240448


A
B
C
D
1
2
3
4
5
6
CN1
2044-2645
1 K00
2 K01
3 K1
4 K0
5 K02
6 K3
7 K2
8 K03
9 K6
10 K5
11 K04
12 K4
13 K05
14 K06
15 K07
16 K8
17 K7
18 K08
19 K10
20 K9
21 K09
22 K13
23 K12
24 K010
25 K11
26 K011
TO E580-E4
53047-1410
CN3
14 13 12 11 10 9 8 7 6 5 4 3 2 1
TO E580-1
53047-1610
CN2
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
TO E580-1
SSW1
SSW2
SSW3
VCC
52044-0445
CN4
1 2 3 4
TO E580-E4-2
Description:
KEY BOARD 2
Board No.
E580-E4-1
Drawing No.
E440509

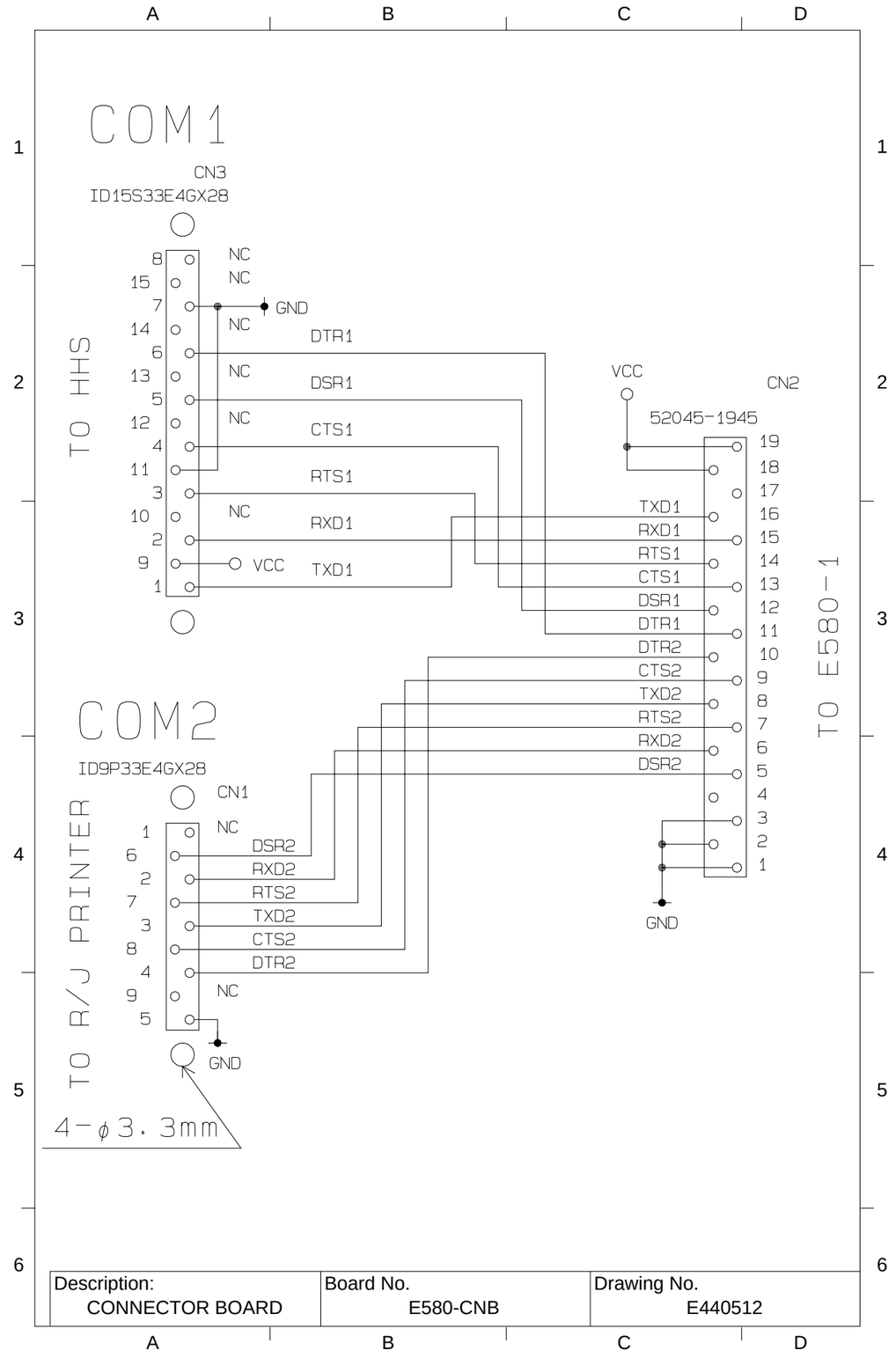

A
B
C
D
1
2
3
4
5
6
CN1
52044-0445
4 3 2 1
TO E580-E4-1
SW2
SW1
SW3
ABU8112S
ABU8112S
ABU8112S
Description:
KEY SHEET SW
Board No.
E580-E4-2
Drawing No.
E440510

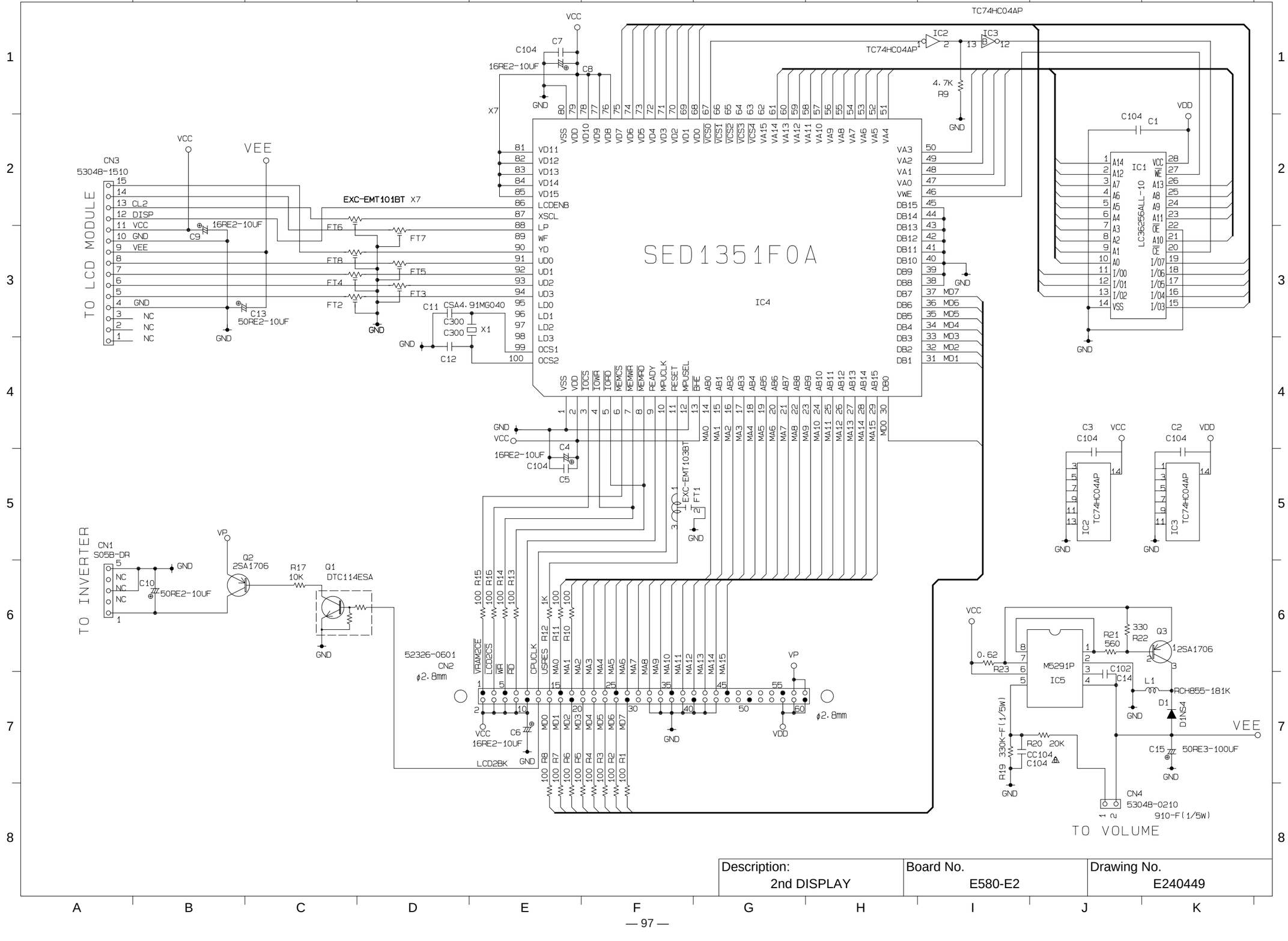


Description:	Board No.	Drawing No.
IR BOARD	E580-IR	E440511



Description:	Board No.	Drawing No.
VOLUME	E580-E2-1	E440508


COM1
CN3
ID15S33E4GX28
TO HHS
NC
NC
GND
NC
DTR1
NC
DSR1
NC
CTS1
RTS1
NC
RXD1
VCC
TXD1
VCC
CN2
52045-1945
TXD1
RXD1
RTS1
CTS1
DSR1
DTR1
DTR2
CTS2
TXD2
RTS2
RXD2
DSR2
GND
TO E580-1
COM2
ID9P33E4GX28
CN1
TO R/J PRINTER
NC
DSR2
RXD2
RTS2
TXD2
CTS2
DTR2
NC
GND
4-φ3.3mm
Description:
CONNECTOR BOARD
Board No.
E580-CNB
Drawing No.
E440512


SED1351F0A
IC4
TC74HC04AP
EXC-EMT101BT X7
EXC-EMT103BT
LC36256ALL-10
IC1
M5291P
IC5
TO LCD MODULE
TO INVERTER
TO VOLUME
CN3 53048-1510
CN1 S05B-DR
CN2 52326-0601
CN4 53048-0210
Q1 DTC114ESA
Q2 2SA1706
Q3 2SA1706
VCC
VEE
VDD
VP
GND
16RE2-10UF
50RE2-10UF
50RE3-100UF
CSA4.91MG040
RCH855-181K
D1NS4
910-F(1/5W)
330K-F(1/5W)
Description: 2nd DISPLAY
Board No. E580-E2
Drawing No. E240449

TO E404-E2 (3/3)

IC2

IC1

IC5

IC3

IC4

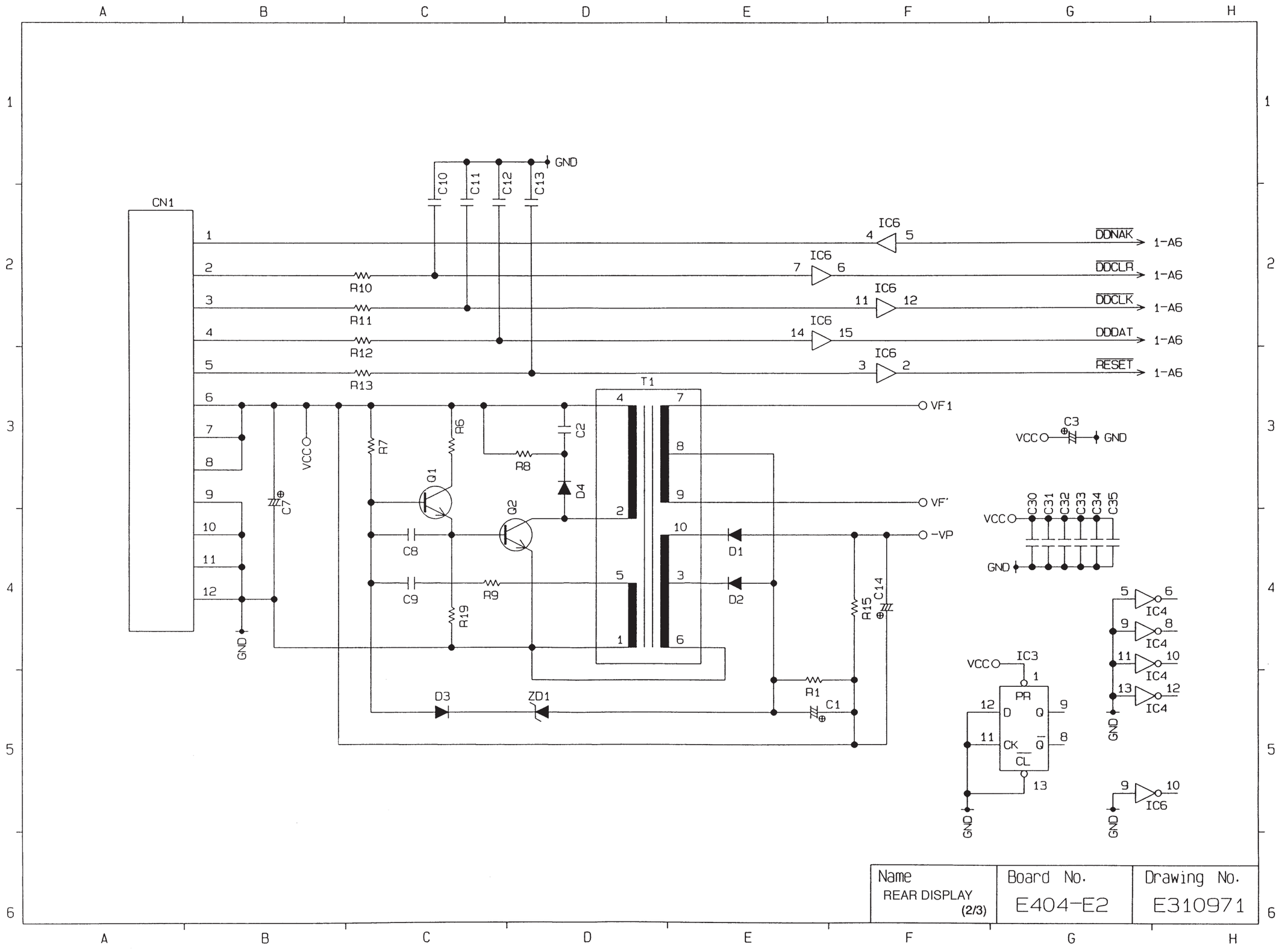
EMI1

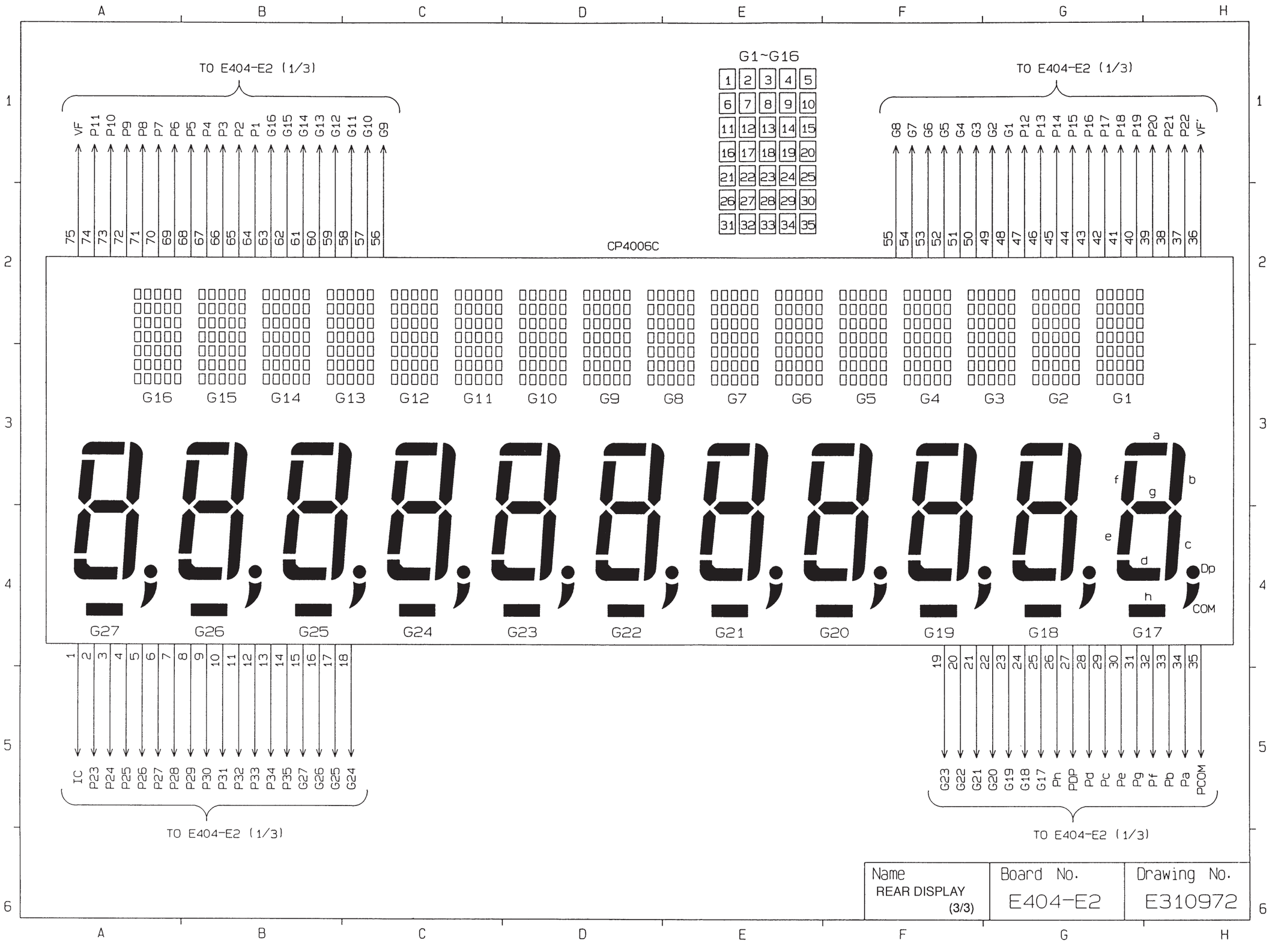
R4 R3 R16 R5 R18 R2 RA4 RA3 RA2 RA1 C4 C5 R17 X1

VCC -VP GND +5V

2-G2> DODAT
2-G2> DOCLK
2-G2> DOCLR
2-G2> DONAK
2-G2> RESET
2-G3> RESET

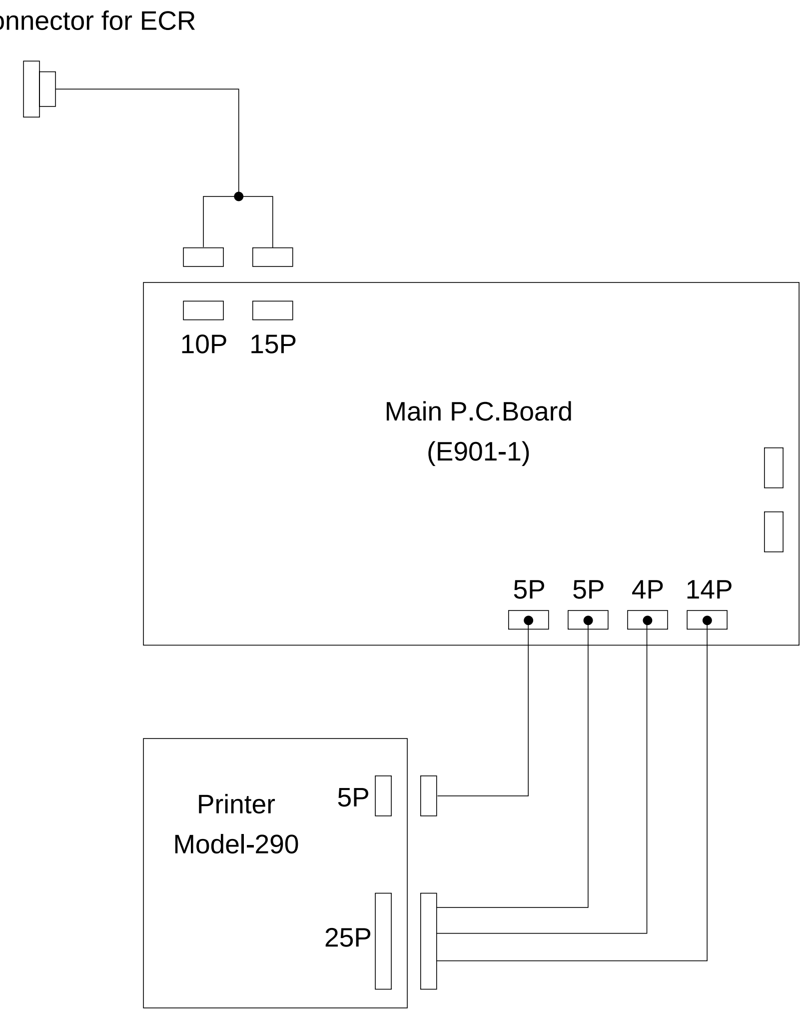
Name	Board No.	Drawing No.
REAR DISPLAY (1/3)	E404-E2	E210838


CN1
GND
C10
C11
C12
C13
IC6
DDNAK
DDCLR
DDCLK
DDDAT
RESET
1-A6
R10
R11
R12
R13
T1
VF1
VF'
-VP
VCC
C3
C30
C31
C32
C33
C34
C35
IC4
IC3
IC6
R6
R7
R8
R9
R19
R15
R1
C1
C2
C7
C8
C9
C14
Q1
Q2
D1
D2
D3
D4
ZD1
Name
REAR DISPLAY
(2/3)
Board No.
E404-E2
Drawing No.
E310971

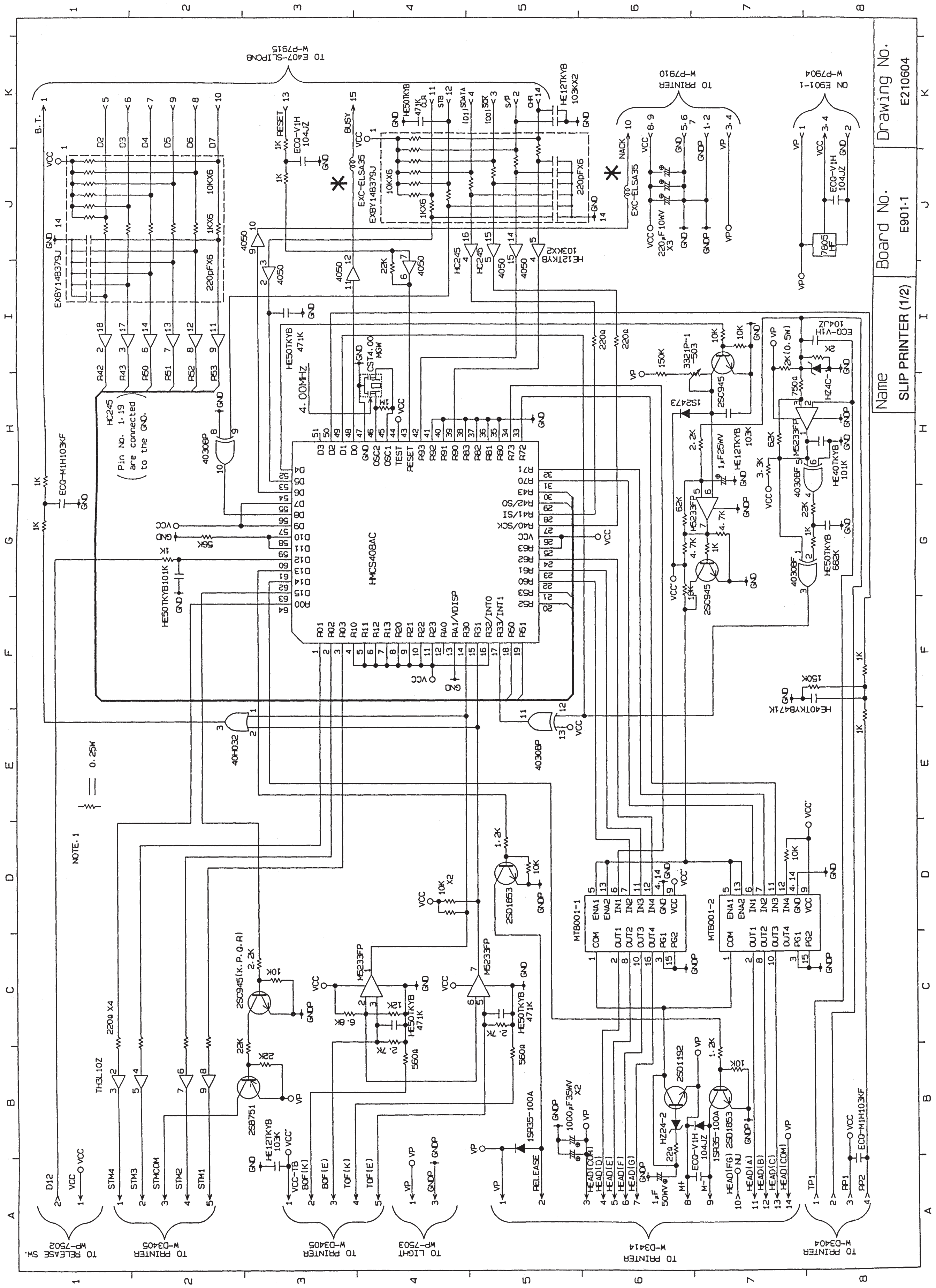

TO E404-E2 (1/3)
VF P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 G16 G15 G14 G13 G12 G11 G10 G9
75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56
G1~G16
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
31 32 33 34 35
TO E404-E2 (1/3)
G8 G7 G6 G5 G4 G3 G2 G1 P12 P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 VF'
55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36
CP4006C
G16 G15 G14 G13 G12 G11 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1
a
f b
g
e c
d
Dp
h
COM
G27 G26 G25 G24 G23 G22 G21 G20 G19 G18 G17
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
IC P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 G27 G26 G25 G24
TO E404-E2 (1/3)
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
G23 G22 G21 G20 G19 G18 G17 Pn PDP Pd Pc Pe Pg Pf Pb Pa PCOM
TO E404-E2 (1/3)
Name
REAR DISPLAY
(3/3)
Board No.
E404-E2
Drawing No.
E310972

1. CIRCUIT DIAGRAM for SP-1200

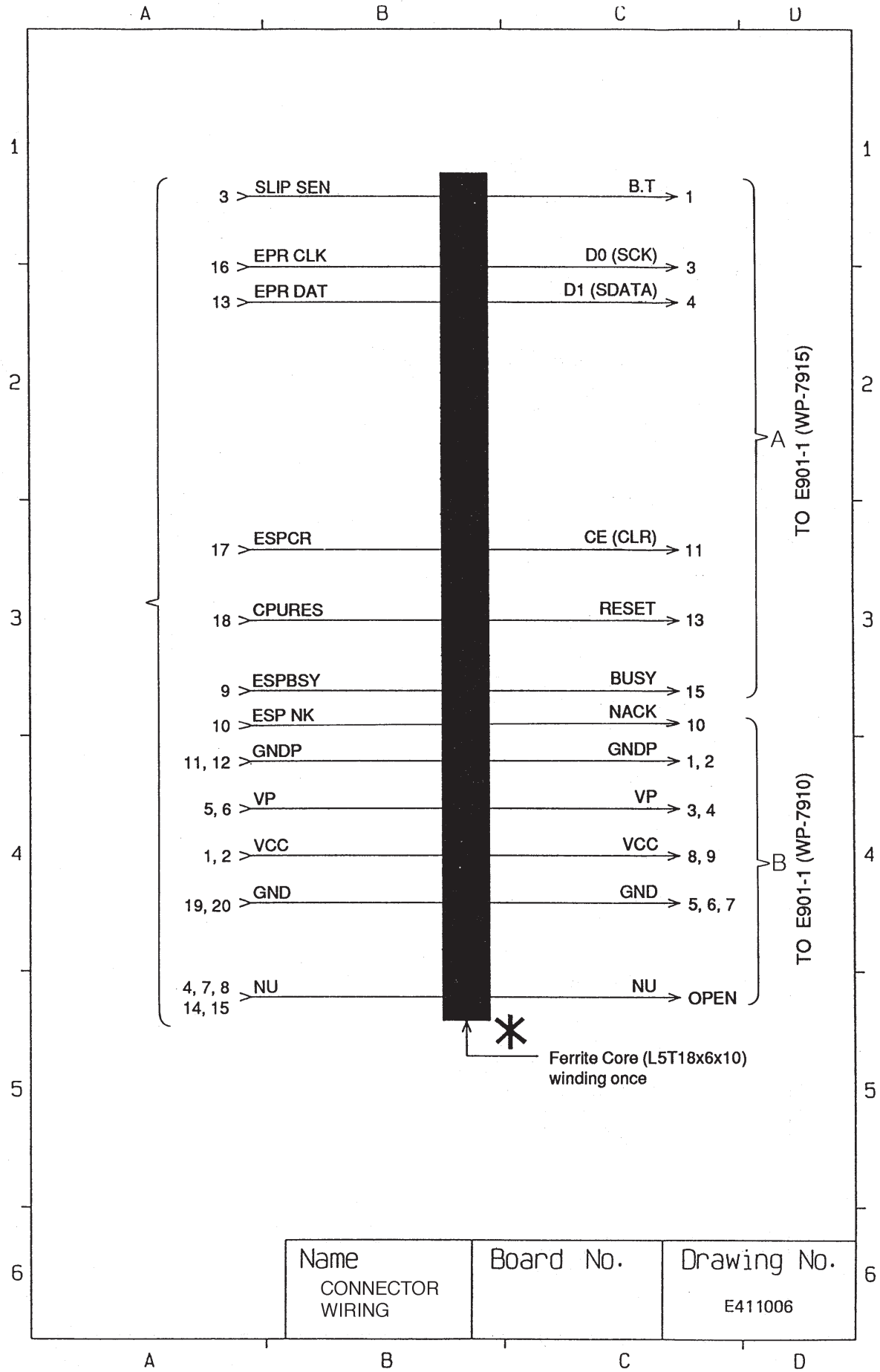
1-1. BLOCK DIAGRAM



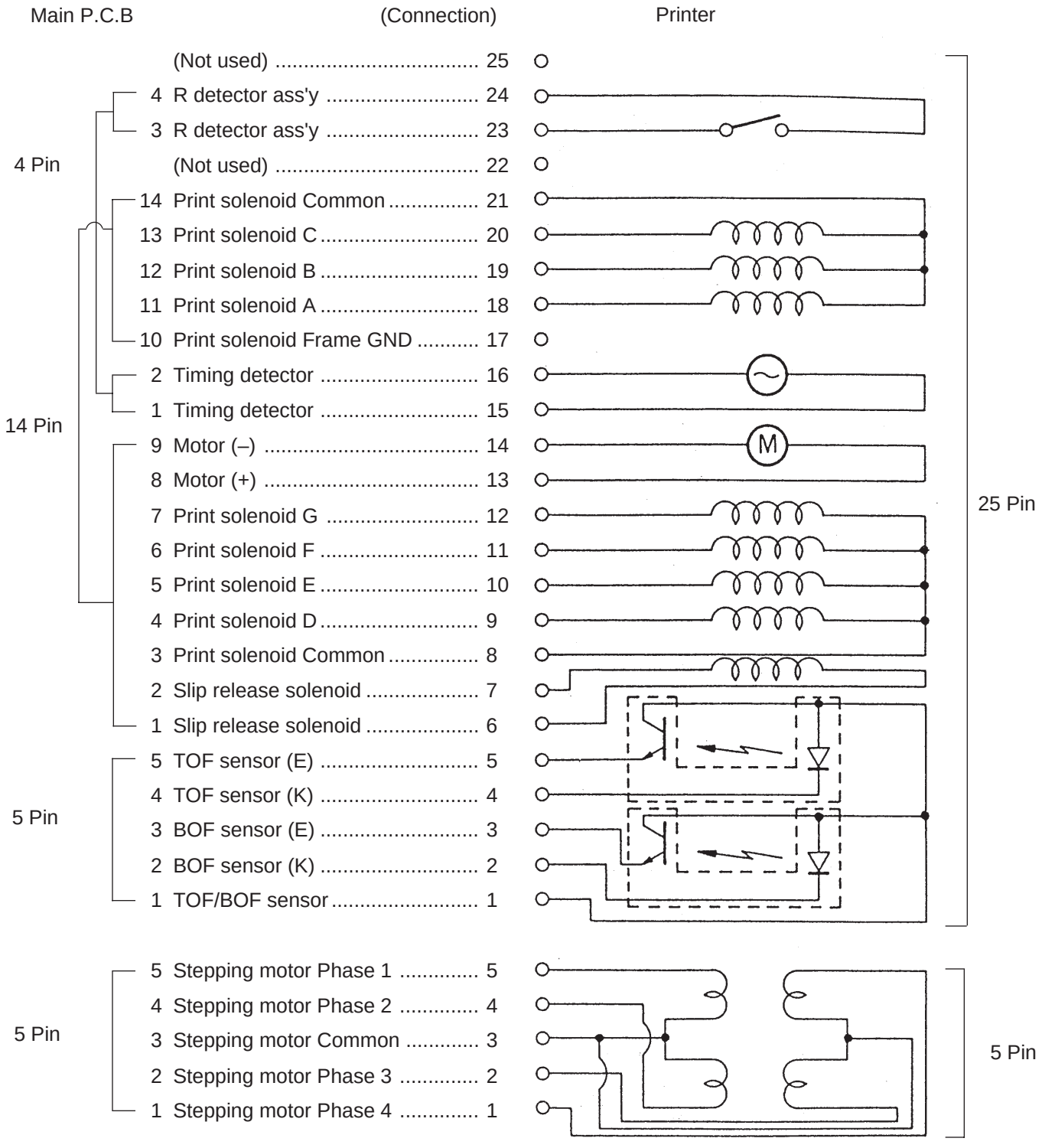
1-2. CONTROL BOARD



1-3. CONNECTOR WIRING (ECR ◄► CONTROL BOARD)



1-4.CONNECTOR WIRING (MAIN CONTROL BOARD ↔ PRINTER)


Main P.C.B
(Connection)
Printer
(Not used) 25
4 R detector ass'y 24
3 R detector ass'y 23
4 Pin
(Not used) 22
14 Print solenoid Common 21
13 Print solenoid C 20
12 Print solenoid B 19
11 Print solenoid A 18
10 Print solenoid Frame GND 17
2 Timing detector 16
1 Timing detector 15
14 Pin
9 Motor (–) 14
8 Motor (+) 13
7 Print solenoid G 12
6 Print solenoid F 11
5 Print solenoid E 10
4 Print solenoid D 9
3 Print solenoid Common 8
2 Slip release solenoid 7
1 Slip release solenoid 6
5 TOF sensor (E) 5
4 TOF sensor (K) 4
5 Pin
3 BOF sensor (E) 3
2 BOF sensor (K) 2
1 TOF/BOF sensor 1
25 Pin
5 Stepping motor Phase 1 5
4 Stepping motor Phase 2 4
3 Stepping motor Common 3
2 Stepping motor Phase 3 2
1 Stepping motor Phase 4 1
5 Pin
5 Pin
M

NOTES:
1. The Pin Nos. are from 1 to 25 starting at the right side of the pin connector.
2. Connector ratings.
   - a. Printer side 25 pin: BS25P-SHF-1AA (Nippon Compression Terminals)
     5 pin: BS5P-SHF-1AA (Nippon Compression Terminals)
   - b. Circuit side 25 pin: H25P-SHF-AA (Nippon Compression Terminals)
     5 pin: H5P-SHF-AA (Nippon Compression Terminals)

13. PARTS LIST

1. QT-2000 108
2. MCR ASS'Y(QT-2046MC) 114
3. REAR DISPLAY ASS'Y(QT-2060D) 116
4. DISPLAY ASS'Y(QT-2063D) 118
5. SP-1200 120
6. PRINTER UNIT MODEL-209 122

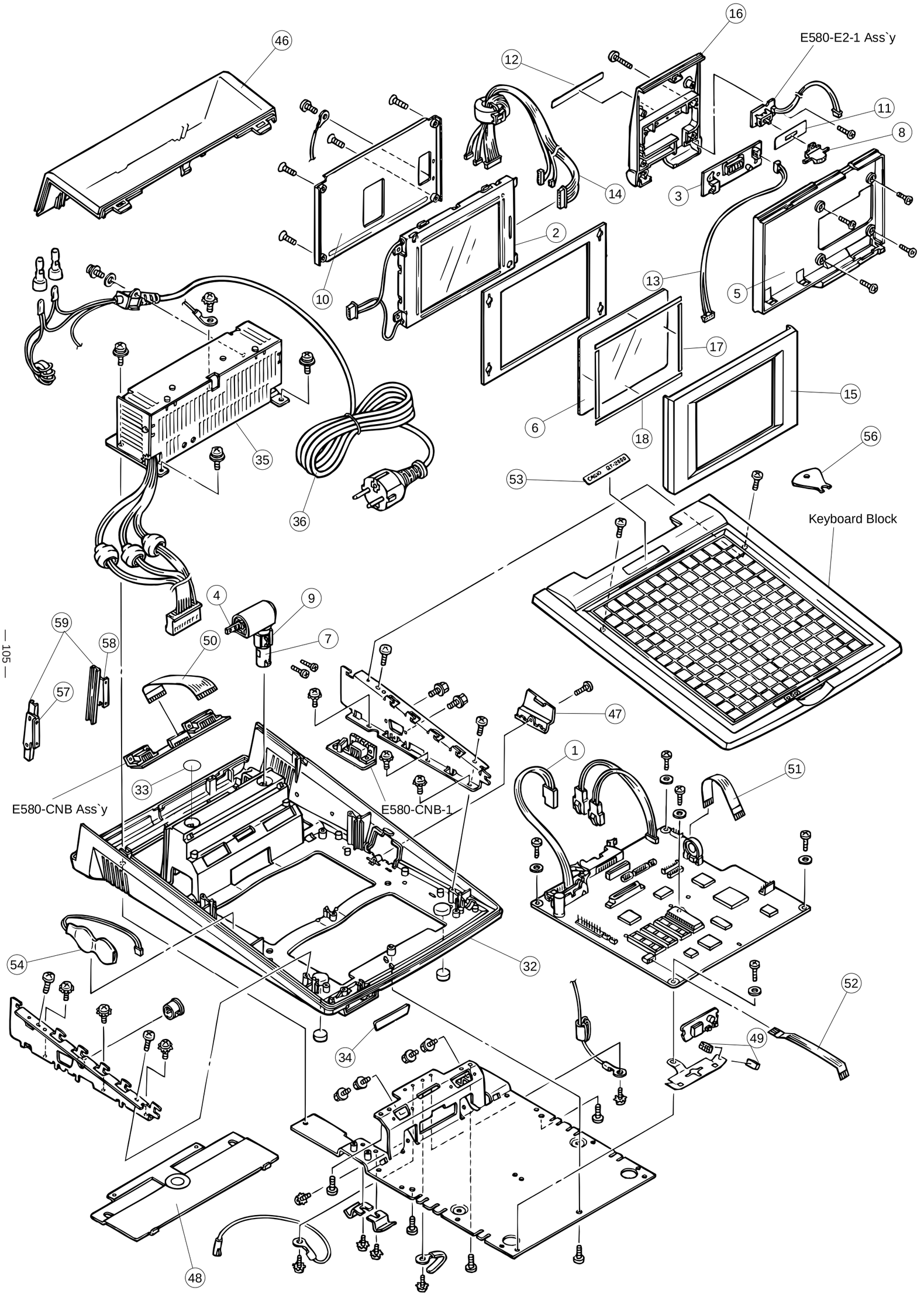
Notes:

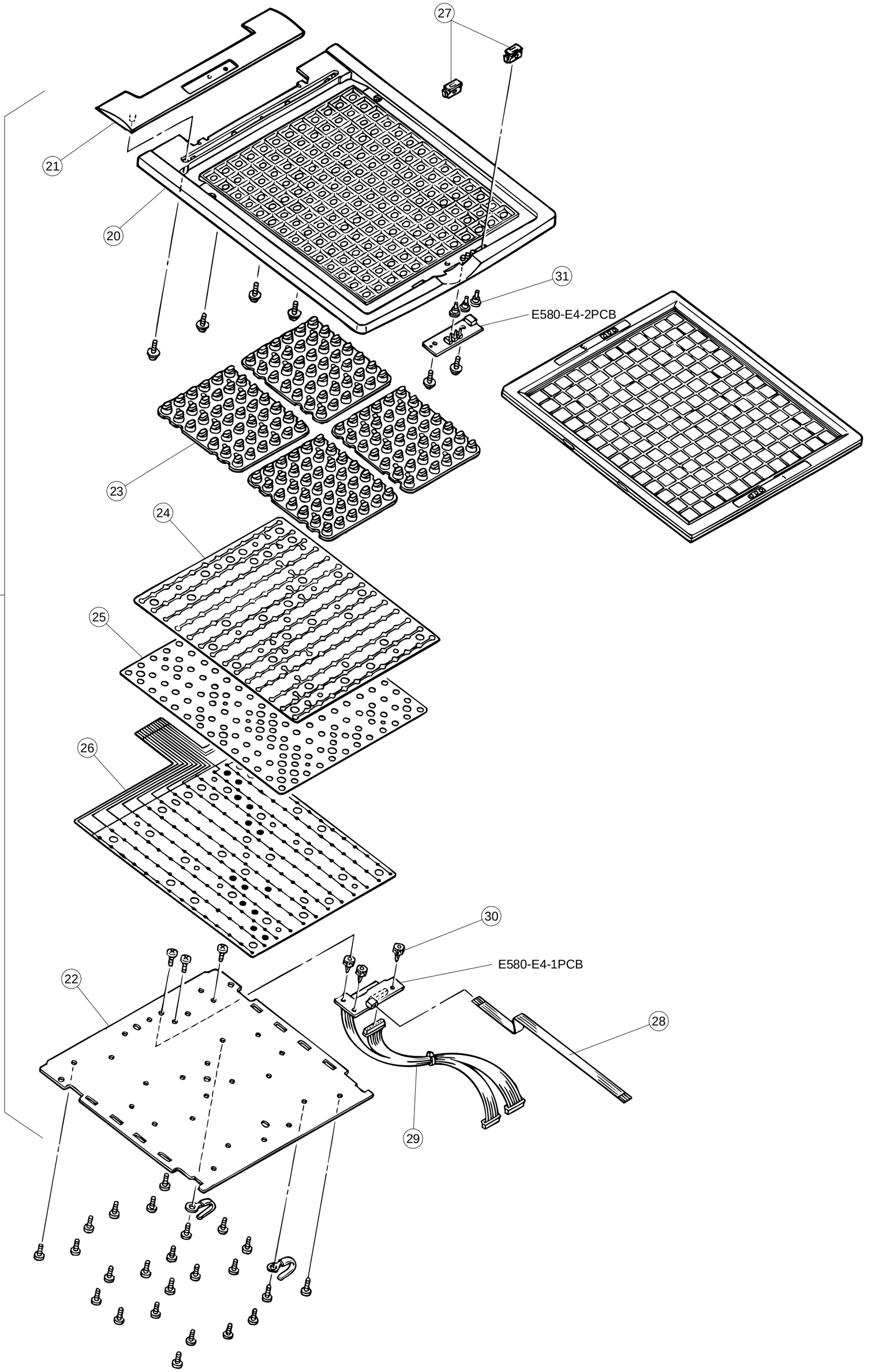
1. Prices and specifications are subject to change without notice.
2. As for order / supply of spare parts, refer to the "GUIDEBOOK for Spare Parts Supply", a separate publication.
3. The numbers in item column correspond to the same numbers in drawing.
4. MARKS:

   Q: Quantity used per unit

   R: Rank

   A: Essential
   B: Stock recommended
   C: Less recommended
   X: No stock recommended


E580-E2-1 Ass`y
Keyboard Block
E580-CNB Ass`y
E580-CNB-1
16
46
12
11
8
14
3
2
10
13
5
17
15
6
18
56
53
35
36
4
9
7
59
58
50
57
47
1
51
33
54
32
52
49
34
48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E580-E4-2PCB
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E580-E4-1PCB
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QT-2000

Item	Code No.	Parts Name	Specification	Version	Q	R
	MAIN PCB BLOCK					
	6193 3504	Main PCB ass'y E580-1	E240399*1		1	A
IC36	2001 9905	LSI/Gate array	MN56020KSJ		1	A
IC12	2003 0755	LSI/Gate array	MN53040KSF1		1	A
IC32	2003 0771	LSI/Gate array	MN53020KSG		1	A
IC11	2003 0780	LSI/Gate array	MN53020KSK		1	A
IC23	2006 1613	LSI/S-RAM	CXK582000M-85/10LL		1	A
IC10	2006 1620	LSI	COM20020BILJP		1	A
IC20	2006 1627	LSI	LC36256AMLL70-10		1	A
IC26	2006 1634	LSI	SED1351F0A		1	A
IC33	2006 1680	LSI	TL16C552AFN		1	A
IC22	2006 1681	LSI	LH28F016SUT-70/10		1	A
IC43	2006 1682	LSI	SRM20100LLM70-10		1	A
IC6	2011 7154	LSI	UPD70108HGC-16-3B6		1	A
IC40	2101 0286	IC/MOS	TC74HC02AF-TP1		1	A
IC24,25,46,53	2101 0294	IC/MOS	TC74HC74AF-TP1		4	A
IC1,27,37,47	2101 0308	IC/MOS	TC74HC4050AF-TP1		4	A
IC54	2101 0618	IC/MOS	TC7S08F-TE85L		1	A
IC34	2101 0651	IC/MOS	TC74HC00AF-TP1		1	A
IC14,15,52	2101 0677	IC/MOS	TC74HC138AF-TP1		3	A
IC2,3	2101 1053	IC/MOS	TC4SU69F TE85L		2	A
IC45	2101 1061	IC/MOS	TC7S32F TE85L		1	A
IC4,29,30	2101 1134	IC/MOS	TC74HC244AF-TP1		3	A
IC13,44,51	2105 1414	IC/MOS	TC7S04F-TE85L		3	A
IC16	2112 0077	IC/Linear	M5291FP-T1		1	A
IC8,17,28	2112 0273	IC/Linear	SN75189ANS-TP-L		3	A
IC7,19,38	2112 0287	IC/Linear	SN75188NS-TP-L		3	A
IC31	2112 0714	LSI/EP-ROM	M27C1001-10/12F1		1	A
IC21	2112 0721	IC/MOS	TC74AC245AF-TP1		1	A
IC5	2112 0728	IC/MOS	TC74HC21AF-TP1		1	A
IC50	2112 0735	IC/MOS	TC74HC373AF-TP1		1	A
IC42	2112 0742	IC/MOS	TC74HC4049AF-TP1		1	A
IC9,18	2112 0749	IC/TTL	SN751178NS-TP-L		2	A
IC48	2112 0763	IC/Linear	M51957BFP-T1		1	A
IC49	2112 0784	IC/MOS	TC74HCT157AF-TP1		1	A
Q5,7	2250 0910	Transistor	2SA1729-TC		2	B
Q1	2250 1519	Transistor/Digital	DTC123JKAT146		1	B
Q10	2250 1526	Transistor	2SD1625-TD		1	B
Q4,8	2254 0434	Transistor/Digital	DTA114EKAT146		2	B
Q6	2254 0441	Transistor/Digital	DTC114EKAT146		1	B
ZD1	2310 9409	Diode/Zener	RD5.1FB3		1	B
ZD2	2315 3088	Diode/Zener	RD22EB1		1	B
D9,10,13,14,17	2390 1820	Diode	1SS355TE-17		5	B
D12	2390 1848	Diode	D1FS4-4063		1	B
D15	2390 2058	Diode	1SR154-400TE25		1	B
X4-6	2520 1744	Oscillator/Ceramic	CSA4.91MG040		3	A
X1	2520 3445	Oscillator/Crystal	C-002RX(M90-76)		1	A
X2	2590 0203	Oscillator/Ceramic	CSA16.00MX040		1	A
X3	2590 1197	Oscillator/Ceramic	CSA20.00MXZ040		1	A
R29		Resistor/Chip carbon film	MCR25JZHJR62		1	X
R119		Resistor/Chip carbon film	MCR10EZHF2400		1	X
R118		Resistor/Chip carbon film	MCR10EZHF91R0		1	X
R40		Resistor/Chip carbon film	MCR100JZHJ5R6		1	X
RA6		Resistor/Chip network	MNR38H0AJ562		1	X

Item	Code No.	Parts Name	Specification	Version	Q	R
RA1		Resistor/Chip network	MNR38H0AJ153		1	X
R112		Resistor/Chip carbon film	MCR10EZHJ202		1	X
RA3		Resistor/Chip network	MNR34J5AJ472		1	X
R32-39,41,69,71-76, R78,80,82-86,92,98, R100,108,109,120-145		Resistor/Chip carbon film	MCR10EZHJ101		54	X
R46		Resistor/Chip carbon film	MCR10EZHJ473		1	X
R42,47,54,56,62,106, R111,114,116,153-155		Resistor/Chip carbon film	MCR10EZHJ102		12	X
R28,48-53		Resistor/Chip carbon film	MCR10EZHJ331		7	X
R104		Resistor/Chip carbon film	MCR10EZHJ563		1	X
R2,45,68,101-103, R107,146,148-150		Resistor/Chip carbon film	MCR10EZHJ472		11	X
R21-25		Resistor/Chip carbon film	MCR10EZHJ221		5	X
R70,117		Resistor/Chip carbon film	MCR10EZHJ152		2	X
R43,44,57,60,91,93,99, R105,113,115,151,152		Resistor/Chip carbon film	MCR10EZHJ103		12	X
R3		Resistor/Chip carbon film	MCR10EZHJ334		1	X
R4,6,55,58,59,61		Resistor/Chip carbon film	MCR10EZHJ100		6	X
R110		Resistor/Chip carbon film	MCR10EZHJ332		1	X
R77,79,81		Resistor/Chip carbon film	MCR10EZHJ562		3	X
RA13,14		Resistor/Chip network	MNR38H0AJ101		2	X
RA11,12,15,16		Resistor/Chip network	MNR34J5AJ101		4	X
RA2,4,5,7-10		Resistor/Chip network	MNR38H0AJ472		7	X
R63-66,88-90,94-97		Resistor/Chip carbon film	MCR10EZHJ683		11	X
R5,7		Resistor/Chip carbon film	MCR10EZHJ203		2	X
R26		Resistor/Chip carbon film	MCR10EZHJ561		1	X
R8-20,31,67		Resistor/Chip carbon film	MCR10EZHJ303		15	X
R1		Resistor/Chip carbon film	MCR10EZHJ106		1	X
C43		Capacitor/Electrolytic	50RE3-1000		1	X
C25,28,33		Capacitor/Electrolytic	16RE2-10		3	X
C30,35,38		Capacitor/Electrolytic	50RE2-10		3	X
C32		Capacitor/Electrolytic	16RE2-47		1	X
C31		Capacitor/Electrolytic	50RE3-100		1	X
C40		Capacitor/Electrolytic	16RE3-470		1	X
C9		Capacitor/Electrolytic	16RE3-100		1	X
C41,42		Capacitor/Electrolytic	25RE3-470		2	X
C53,79,104,112		Capacitor/Chip ceramic	GRM40F104Z50PT		4	X
C7,8,10-22,50,51,54, C55,57,58,64,68,69,77, C89,91,92,98,99,101, C103,113,115,116		Capacitor/Chip ceramic	GRM40CH101J50PT		35	X
C1,3,37,39,44-49,52, C56,60-63,67,70,72-74, C76,78,80-88,90,93-97, C100,102,105-111,114, C117-123,127,128, C130-132,134-137		Capacitor/Chip ceramic	GRM40R104K25PT		65	X
C125,126		Capacitor/Chip ceramic	GRM40R221K50PT		2	X
C129		Capacitor/Chip ceramic	GRM40R471K50PT		1	X
C6		Capacitor/Chip ceramic	GRM40CH100D50PT		1	X
C29,59,71,124		Capacitor/Chip ceramic	GRM40R102K50PT		4	X
F5	3000 7938	Fuse	473.750F10-20		1	A
D1-8	3000 7959	Diode	1SS376TE-17		8	B

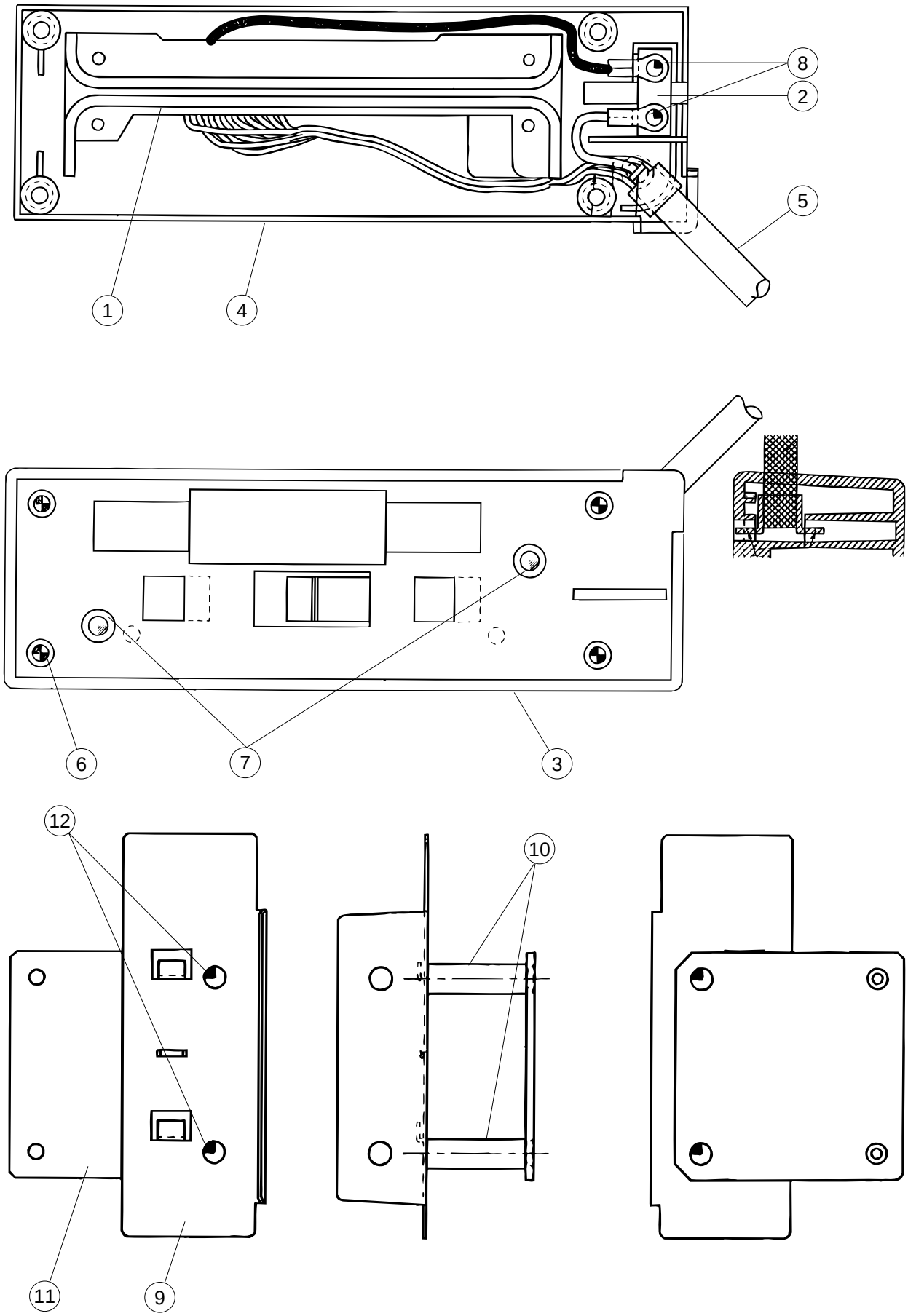
Item	Code No.	Parts Name	Specification	Version	Q	R
F1-4	3000 7966	Fuse	452.5		4	A
L1	3013 1673	Coil	RCH855-181K		1	C
FT21		Filter/EMI	NFM40R11C222T1		1	X
FT1-20,22-25,27-39		Filter/EMI	NFM840R01G101T1		37	X
FT26		Filter/EMI	NFM39R12C222T1		1	X
BZ1	3240 2089	Buzzer	PKM22EPT-2001		1	X
CN5	3500 3240	Connector/7P	IL-G-7P-S3T2-E		1	C
CN14	3500 3681	Connector/12P	IL-G-12P-S3T2-E		1	C
CN17,18	3500 5846	Connector	53253-0210		2	C
CN10	3510 4119	Connector	FRC3-C20L13-OS		1	C
CN15	3510 4127	Connector	FRC3-C20S13-OL		1	C
CN16	3540 3183	Connector/9P	5275-09A		1	C
CN4	3540 5109	Connector	HLEM9S-1		1	C
CN11	3540 5116	Connector	HLEM19S-1		2	C
CN13	3540 5123	Connector	52411-0601		1	C
CN6	3540 5137	Connector	53047-1410		1	C
CN9	3540 5144	Connector	53047-1510		1	C
CN7	3540 5151	Connector	53047-1610		1	C
CN19	3540 5158	Connector	HLEM8R-1		1	C
CN12	3540 5173	Connector	B05-DR		1	C
IC31,35,39	3610 6859	Socket/IC	DILB32P-8JK		3	X
CN2	6247 9598	Connector/In-line	E340561*1		1	A
C2,4,5,23,24,65,66		Capacitor/Chip	GRM40CH330J50PT		7	X
C26,27,34,36		Capacitor/Chip	GRM40CH300J50PT		4	X
CN8	7740 0742	Connector	53047-0210		1	C
R30		Resistor/Chip	MCR10EZHF5103		1	X
		PCB/E580-1	E240408B-1		1	X
		Stopper	HU-006		2	X
1	6221 1326	Connector/1625-03R	E32564-7(#24-250)		1	C
	E580-IR ASS'Y					
IC1	2112 0756	IC	ST84C01CF8-TR		1	A
R1		Resistor/Chip carbon film	MCR10EZHJ101		1	X
R2		Resistor/Chip carbon film	MCR10EZHJ7R5		1	X
R3		Resistor/Chip carbon film	MCR10EZHJ470		1	X
C1		Capacitor/Chip electrolytic	RV2-10V470M-R		1	X
C2		Capacitor/Chip ceramic	GRM40R104K25PT		1	X
C3		Capacitor/Chip ceramic	GRM40R472K50PT		1	X
CN1	3540 5158	Connector	HLEM8R-1		1	C
FT1		Filter/EMI	NFM40R11C102T1		1	X
LED1	2408 8380	LED	GL1F20C		1	B
LED2	2408 8387	LED	IS1U20C		1	B
	DIAPLAY ASS'Y BLOCK					
2	3000 7973	LCD module	MD32PM6R-SNA		1	A
3	3000 7980	Inverter/CFL	PS-10058-002		1	A
4	5500 1897	Shaft	KH52A050		1	X
5	6247 7183	Case/LCD R-1	E140126-1		1	X
6	6247 7281	Panel/LCD	E340436-1		1	X
7	6247 7295	Hinge/LCD	E340438-1		1	X
8	6247 7302	Knob	E340439-1		1	X
9	6247 7358	Roller/Hinge	E440396-1		1	X
10	6248 0179	Chassis/LCD	E340613-1		1	X
11	6248 0186	Sheet/Blind	E440470-1		1	X

Item	Code No.	Parts Name	Specification	Version	Q	R
12	6248 0193	Plate/Blind	E440472-1		1	X
13	6248 0200	Cable/51021-15	E340541-1(#26-350)		1	C
14	6248 0763	Connector/51021	E340539C-1		1	X
15	6248 0767	Case/F LCD	E140125A-1		1	X
16	6248 0769	Cover/LCD	E240331A-1		1	X
17	6248 0878	Cushion/ V LCD	E440561-1		2	X
18	6248 0879	Cushion/H LCD	E440562-1		2	X
	E580-E2-1 ASS'Y					
VR1	3502 2012	Resistor/Variable	RS10F12-A-5-10KB		1	C
CN1	6248 0766	Connector/51005-02	E340629A-1		1	C
	E580-CNB ASS'Y					
CN2	3540 5116	Connector	HLEM19S-1		1	C
CN3	3000 7924	Connector/D-sub/Female	ID15S33E4GX28		1	C
CN1	3000 7917	Connector/D-sub/Male	ID9P33E4GX28		1	C
	E580-CNB-1					
CNB1	3540 5109	Connector	HLEM9S-1		1	C
CNB2	3000 7917	Connector/D-sub/Male	ID9P33E4GX28		1	C
	KEYBOARD BLOCK					B
19	6193 3434	Keyboard ass'y	E240387*1		1	X
20	6247 7596	Frame/Keyboard	E140104-1		1	X
21	6247 7603	Holder/Keyboard	E240342-1		1	X
22	6247 7225	Chassis/Keyboard	E240299-1		1	X
23	6247 7309	Rubber/Contact	E340446-1		4	A
24	6247 7204	Sheet/Common keyboard	E240296-1		1	A
25	6248 0898	Spacer/Keyboard	E240297A-1		1	A
26	6247 7218	Cable/Joint	E240298-1		1	C
27	5500 1690	Plate	B-MMC12		2	X
28	6247 7351	Cable/Joint	E440380-4		1	C
29	6248 0742	Cable/Keyboard	E440551*1		1	C
30	5500 1683	Spacer/Card	KGTS-4K		3	X
		Screw/3X6	3X6ZMC-3		27	X
31	6248 0770	Button/Detection	E440387A-1		3	C
		Screw/3X8	3X8 ZMC-3		6	X
	E580-E4-1 PCB BLOCK					
CN1	3500 5848	Connector/FFC	HLEM26R-1		1	A
CN2	3540 5151	Connector	53047-1610		1	C
CN3	3540 5137	Connector	53047-1410		1	C
CN4	3540 5095	Connector	HLEM4R-1		1	C
	E580-E4-2 PCB BLOCK					
CN1	3540 5095	Connector	HLEM4R-1		1	C
SW1-3	3000 7931	Switch	ABU8112S		3	B
	LOWER CASE BLOCK					
32	6247 7575	Case/Lower	E140122-1		1	X
33	6247 7582	Plate/Display filler	E440403-1		1	X
		Chassis/B	E140132-1		1	X
		Chassis/R	E240344-1		1	X
		Chassis/L	E240343-1		1	X

Item	Code No.	Parts Name	Specification	Version	Q	R
		Holder/Cable	E440375-1		1	X
		Terminal/Earth	E440398-1		1	X
34	6247 7456	Filter/IR	E440418-1		1	C
		Rubber/Foot	E412136-1		2	X
35	3000 8020	Power supply unit/Switching	PS-10055-003 (200V)		1	A
35	3000 8021	Power supply unit/Switching	PS-10055-004 (100V)		1	A
36	6221 4802	Cord/Power	M2511(EU,G,DI)		1	C
36	3701 0242	Cord/Power	MP5004 (EU,UK,DI)		1	C
36	3700 4283	Cord/Power	M3203 (DI)		1	C
36	3700 4281	Cord/Power	PS204 (US,L,DI)		1	C
		Screw	3X8 ZMC-3		8	X
		Screw	3X6 ZMC-3		12	X
		Screw	3X5 ZMC-3		1	X
		Screw	4X5 ZMC-3		1	X
		Screw	3X8 ZMC-3		2	X
		Clip/Wire	CS-2-U		1	X
		Wire/FG	E310997C-29		1	X
		Plate/Earth S	E440449-1		2	X
		Cable/Joint	CE2		2	C
		Ferrite core	RI-12-15-8.5		1	X
		Bush	TB-0813		1	X
		Screw	4X8 ZMC-3		3	X
		Germany only	E340509*1			
CLERK KEY ASS'Y						
37	3400 2576	Switch/Clerk key	J-Y7541		1	C
38	5111 5760	Screw	2.6X8 ZMC-3		2	X
39	5440 0483	Screw	3X8 ZMC-3		1	X
40	6215 2303	Spring/Earth clerk	E42180-1		1	X
41	6247 7365	Plate/Clerk SW	E440397-1		1	X
42	6247 7673	Case/Clerk SW	E340469-1		1	X
43	6248 0687	Connector/IL-G	E440507*1		1	X
44	3418 1594	Key set/Clerk 6	306JYB-135-01		1	C
45	3418 1609	Key set/Clerk 15	306JYB-135-03		1	C
GENERAL COMPONENTS						
46	6248 0972	Plate/Rear display	E140127B-1		1	C
47	6247 7568	Cover/Connector	E340445-1		1	C
48	6247 7316	Cover/Bottom	E340461-1		1	X
		Grommet	B-1		1	X
		Plate/Shield IR	E440539-1		1	X
49	6220 6829	Rubber/Spacer	E411002-1		2	X
50	6247 7330	Cable/Joint 1	E440380-1		1	C
51	6247 7337	Cable/Joint 2	E440380-2		1	C
52	6247 7344	Cable/Joint 3	E440380-3		1	C
53	6247 7470	Plate/Name	E440437-1		1	C
54	3000 7588	Battery/Lithium vanadium	VL3032/S6A		1	A
55	3500 5820	Connector/In-line	XLP-KIT-1		1	A
56	6248 0221	Opener/Sheet	E440503-1		1	C
		Clip (Germany only)	CA-8		1	X
		Screw	3X15 ZMC-3		5	X
		Screw	3X8 NI		2	X
		Screw	3X12 NI		1	X
		Screw	3X6 ZMC-3		3	X

Item	Code No.	Parts Name	Specification	Version	Q	R
		Ferritte core	TFC-23-11-14		1	X
		Screw	E440564-1		2	X
	U.S.A. and CANADA only					
57	6247 7449	Stand/Rear R	E440415-1		1	C
58	6247 7442	Stand/Rear L	E440414-1		1	C
59	5500 1802	Guide	GR-80S		2	C
60	6193 4575	E404-E2 ass'y	E210694H*3		1	A
		Screw	3X5 ZMC-3		4	X

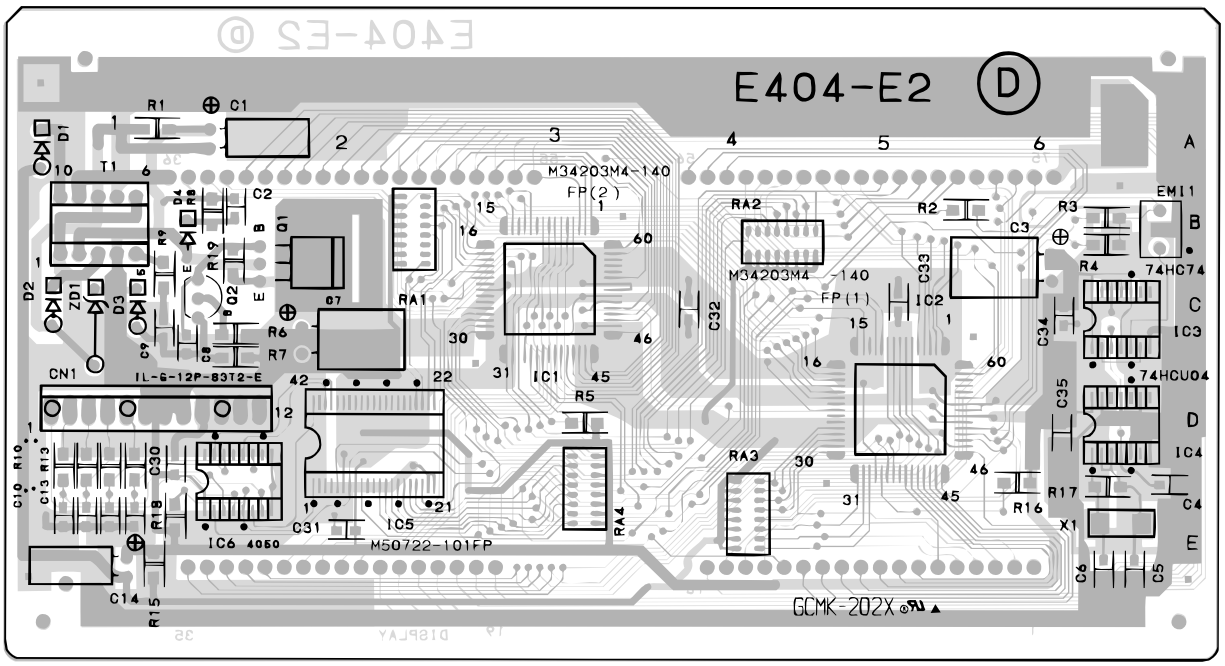
2. MCR ASS'Y (QT-2046MC)

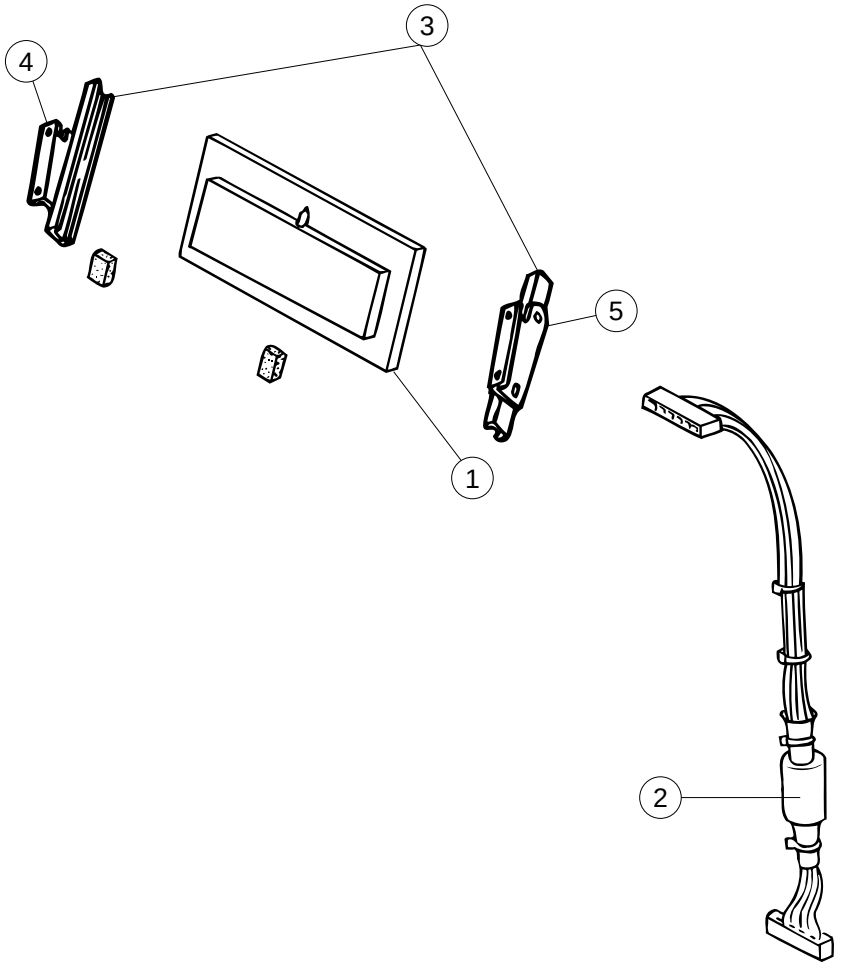


QT-2046MC

Item	Code No.	Parts Name	Specification	Version	Q	R
1	1090 5665	MCR unit	ZU-M1242S4		1	A
2	6220 5857	Earth plate	E410943-1		1	C
3	6248 0088	Upper case	E210283-4		1	C
4	6248 0095	Lower case	E210351A-3		1	C
5	6248 0756	MCR cable sub ass'y	E340562-1		1	B
6		Screw 2.3x8 ZMC-3	2.3X8 ZMC-3		4	X
7		Screw 2.6x8 ZMC-3	2.6X8 ZMC-3		2	X
8		Screw 2.6x8 ZMC-3	2.6X8 ZMC-3		2	X
9	6193 4211	MCR mount ass'y	E440500*1		1	C
10	6248 0102	Fixing metal	E310425A-3		1	X
11	6248 0144	MCR stay	E440493-1		2	X
12	6248 0151	MCR mount	E440494-1		1	X
		Screw 4x16 ZMC-3	4X16 ZMC-3		4	X

3. REAR DISPLAY ASS'Y (QT-2060D)

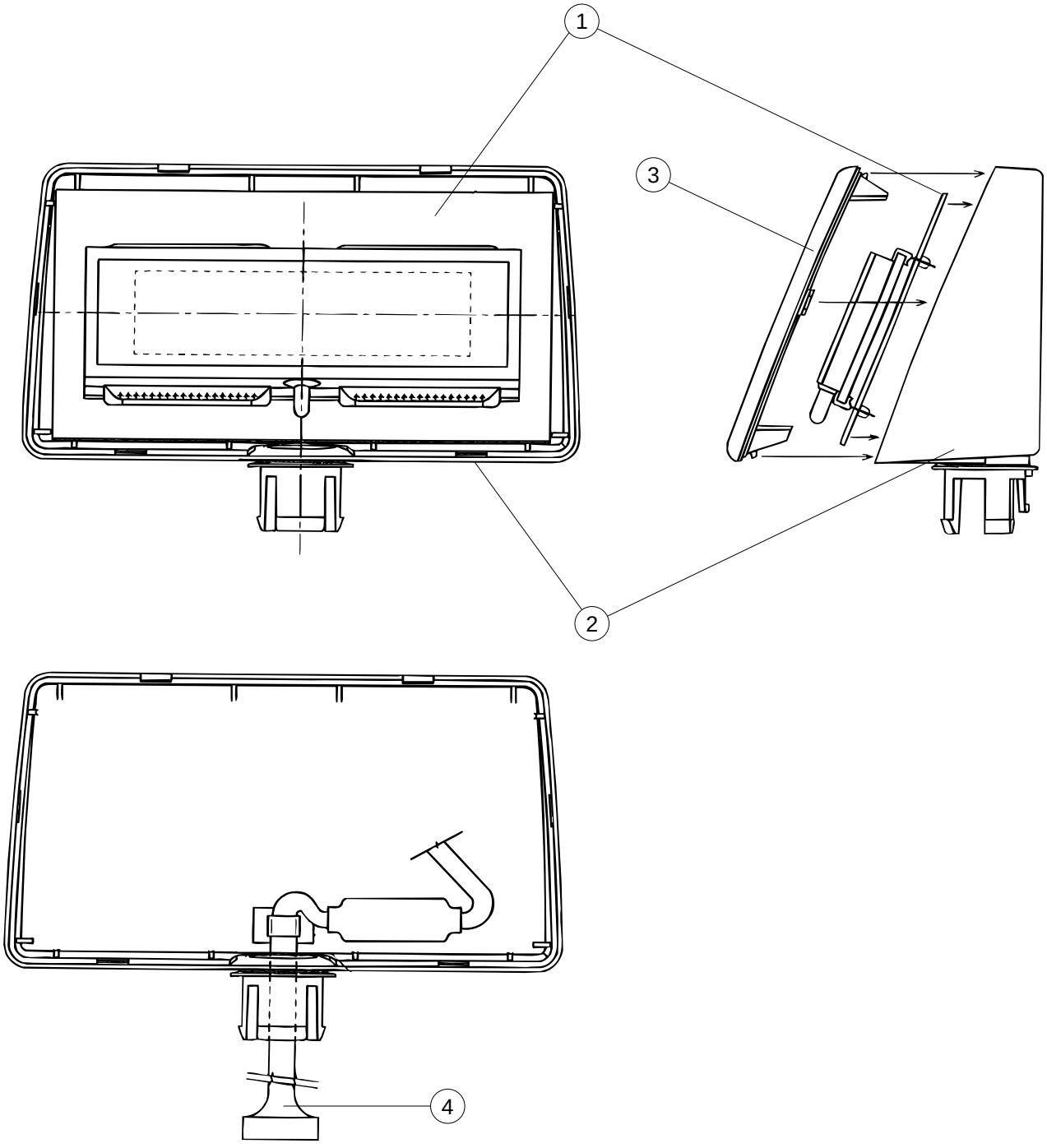




QT-2060D

Item	Code No.	Parts Name	Specification	Version	Q	R
1	6193 4575	PCB ass'y E404-E2	E210694H*3		1	
IC5	2003 0704	LSI	M50722-101FP		1	A
IC1,2	2003 0712	LSI	M34203M4-140FP		2	A
IC3	2101 0294	MOS IC	TC74HC74AF-TP1		1	A
IC6	2101 0961	MOS IC	TC4050BF-TP1		1	A
IC4	2112 0231	MOS IC	TC4069UBF-TP1		1	A
Q2	2220 3720	Transistor	2SC3074-Y		1	B
Q1	2280 0017	Transistor	2SC1815-GR		1	B
D1-4	2301 0445	Diode	1SS130		4	B
ZD1	2310 7113	Zener diode	RD22EB2		1	B
X1	2520 1817	Ceramic oscillator	CSAC5.00MGCM-TC		1	B
R5,16,18	2792 0152	Chip resistor	MCR18EZHJ472		3	X
R1,7,8,15	2792 0179	Chip resistor	MCR18EZHJ103		4	X
R2-4,10-12	2792 0276	Chip resistor	MCR18EZHJ101		6	X
R13,19	2792 0314	Chip resistor	MCR18EZHJ102		2	X
R17	2792 0748	Chip resistor	MCR18EZHJ105		1	X
RA1,4	2792 1299	Chip module resistor	MNR38H0AJ103		2	X
R6	2792 1329	Chip resistor	MCR18EZHJ680		1	X
RA2,3	2792 1337	Chip resistor	MNR38H0AJ563		2	X
R9	2795 2856	Chip resistor	MCR18EZHJ151		1	X
C1,14	2807 3596	Electrolytic capacitor	RJJ-50V390MF3		2	X
C3,7	2807 3603	Electrolytic capacitor	RJJ-16V471MG5		2	X
C5,6	2818 3771	Chip caramic capacitor	GRM40CH300K50PT		2	X
C4,11,12	2818 3780	Chip caramic capacitor	GRM40CH101K50PT		3	X
C10,13	2818 3801	Ceramic capacitor	GRM40CH102K50PT		2	X
C2	2818 3836	Chip caramic capacitor	GRM40R103K50PT		1	X
C30-35	2818 3844	Ceramic capacitor	GRM40R104K25PT		6	X
C9	2818 3852	Ceramic capacitor	GRM40R332K50PT		1	X
C8	2818 3861	Chip capacitor	GRM40R682K50PT		1	X
T1	3010 6504	DC/DC convertor	DCSS-404		1	A
EMI1	3020 2376	EMI filter	ZJSR5101-101-R		1	X
DISPLAY	3300 3552	Display tube	CP4006C		1	A
CN1	3500 3681	Pin ass'y 12P	IL-G-12P-S3T2-E		1	C
	4308 1390	PCB E404-E2 (Without components)	E210707C-1		1	X
2	6220 9232	Connector sub ass'y	E310897*1		1	C
	6221 1261	Display cushion	E411210-1		2	X
	6221 1474	Display cushion	E411235-1		4	X
3	5500 1802	Guide rail (GR)	GR-80S		2	C
4	6247 7442	Display mount stand L	E440414-1		1	C
5	6247 7449	Display mount stand R	E440415-1		1	C
		Screw 3x5 ZMC-3	3X5 ZMC-3		4	X

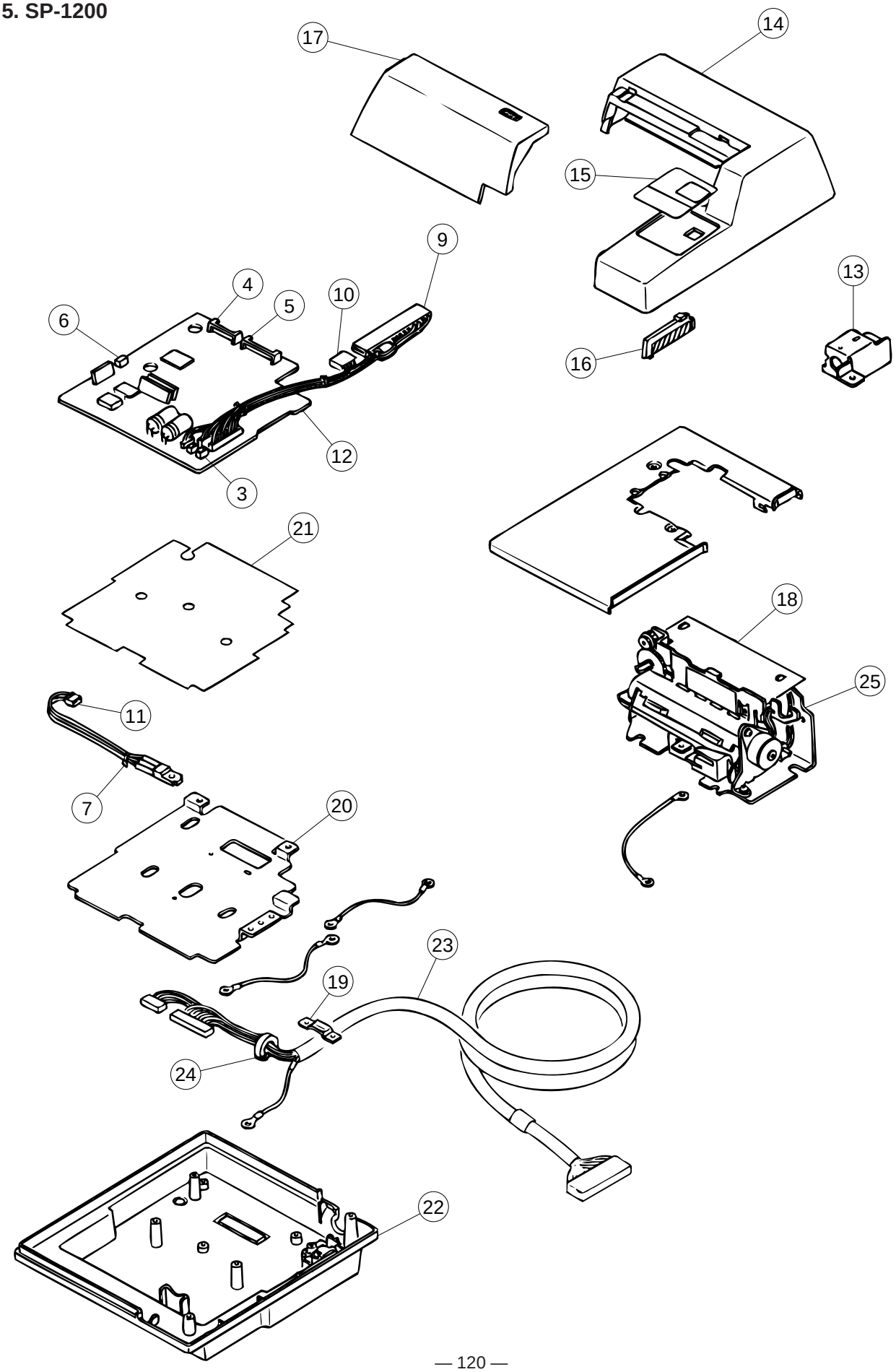
4. DISPLAY ASS'Y (QT-2063D)



QT-2063D

Item	Code No.	Parts Name	Specification	Version	Q	R
1	6190 8751	PCB ass'y E404-2	E210694*1		1	B
IC5	2003 0704	LSI	M50722-101FP		1	A
IC1,2	2003 0712	LSI	M34203M4-140FP		2	A
IC3	2101 0294	MOS IC	TC74HC74AF-TP1		1	A
IC6	2101 0961	MOS IC	TC4050BF-TP1		1	A
IC4	2112 0231	MOS IC	TC4069UBF-TP1		1	A
Q2	2220 3720	Transistor	2SC3074-Y		1	B
Q1	2280 0017	Transistor	2SC1815-GR		1	B
D1-4	2301 0445	Diode	1SS130		4	B
ZD1	2310 7113	Zener diode	RD22EB2		1	B
X1	2520 1817	Ceramic oscillator	CSAC5.00MGCM-TC		1	B
R5,16,18	2792 0152	Chip resistor	MCR18EZHJ472		3	X
R1,7,8,15	2792 0179	Chip resistor	MCR18EZHJ103		4	X
R2-4,10-12	2792 0276	Chip resistor	MCR18EZHJ101		6	X
R13,19	2792 0314	Chip resistor	MCR18EZHJ102		2	X
R17	2792 0748	Chip resistor	MCR18EZHJ105		1	X
RA1,4	2792 1299	Chip module resistor	MNR38H0AJ103		2	X
R6	2792 1329	Chip resistor	MCR18EZHJ680		1	X
RA2,3	2792 1337	Chip resistor	MNR38H0AJ563		2	X
R9	2795 2856	Chip resistor	MCR18EZHJ151		1	X
C1,14	2807 3596	Electrolytic capacitor	RJJ-50V390MF3		2	X
C3,7	2807 3603	Electrolytic capacitor	RJJ-16V471MG5		2	X
C5,6	2818 3771	Chip ceramic capacitor	GRM40CH300K50PT		2	X
C4,11,12	2818 3780	Chip ceramic capacitor	GRM40CH101K50PT		3	X
C10,13	2818 3801	Ceramic capacitor	GRM40CH102K50PT		2	X
C2	2818 3836	Chip capacitor	GRM40R103K50PT		1	X
C30-35	2818 3844	Ceramic capacitor	GRM40R104K25PT		6	X
C9	2818 3852	Ceramic capacitor	GRM40R332K50PT		1	X
C8	2818 3861	Chip capacitor	GRM40R682K50PT		1	X
T1	3010 6504	DC/DC convertor	DCSS-404		1	A
EMI1	3020 2376	EMI filter	ZJSR5101-101-R		1	X
DISPLAY	3300 3552	Display tube	CP4006C		1	A
CN1	3500 3681	Pin ass'y 2P	IL-G-12P-S3T2-E		1	C
	4308 1390	PCB E404-E2 (without components)	E210707C-1		1	X
2	6248 0606	Display case	E110169-2		1	C
3	6248 0613	Display window	E110170-7		1	C
	6220 9232	Connector sub ass'y	E310897*1		1	C
	6231 8813	Connector sub ass'y	E310855A*1		1	C
	6221 1261	Display cushion	E411210-1		2	X
	6221 1474	Display cushion	E411235-1		4	X

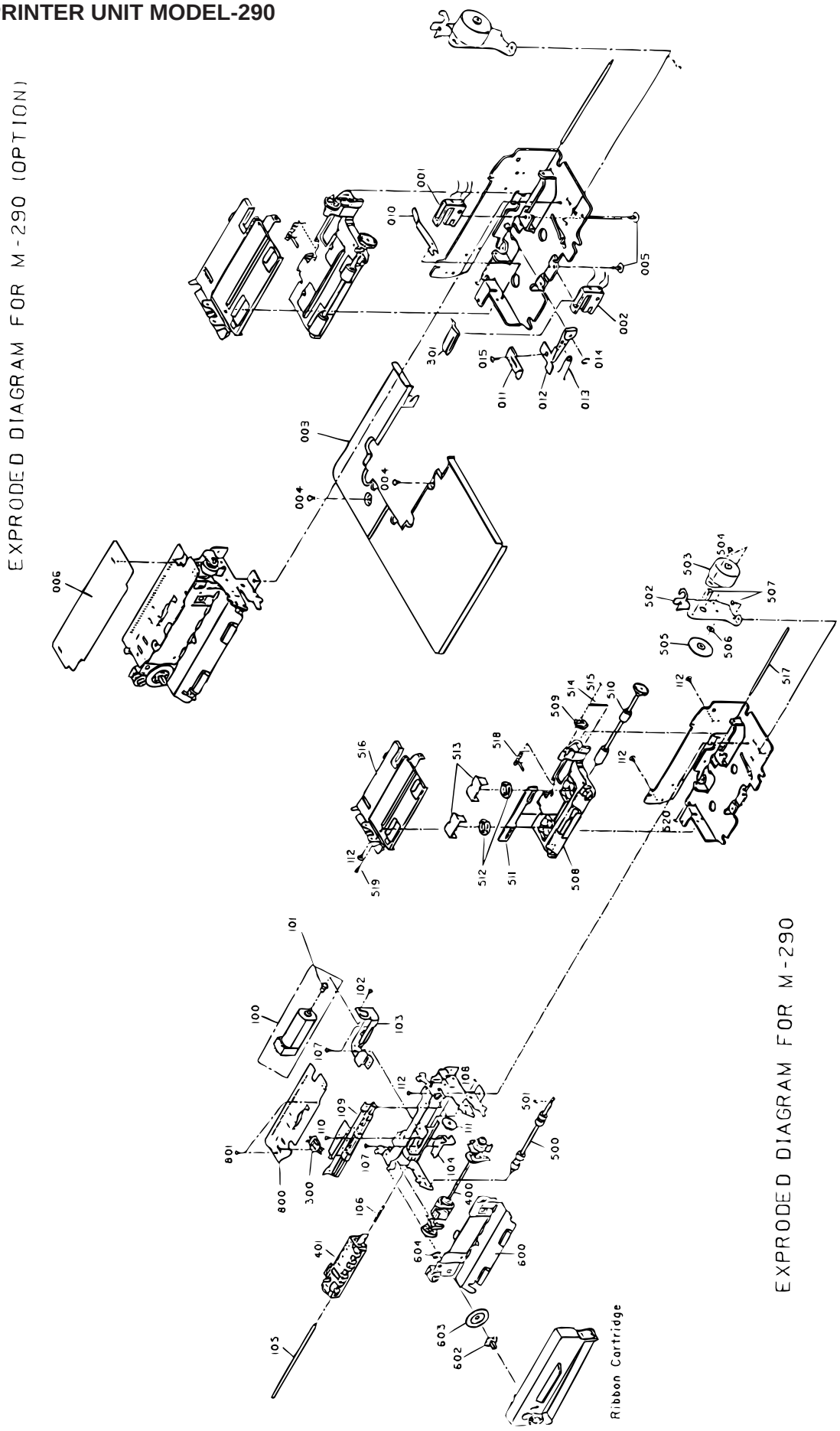
5. SP-1200



SP-1200

Item	Code No.	Parts Name	Specification	Version	Q	R
		Control PCB block				
	6190 9470	PCB ass'y E901-1	E210517H*2		1	A
	2001 9832	LSI	HD614089FB67		1	A
	2101 0898	MOS IC	TC74HC245AF		1	A
	2101 0901	MOS IC	TC4030BF		1	A
	2101 1118	MOS IC	TC74HC32AF		1	A
	2106 0007	MOS IC	TC4050BF		1	A
	2112 0427	Regurator IC	UPC7805AHF		1	A
	2120 7306	Liner IC	M5233FP		2	A
	2120 8795	Monolythic IC	TH3L10Z		1	A
	2120 9180	Monolythic IC	MTB001		2	A
	2210 7305	Transistor	2SB1282		1	B
	2220 2375	Transistor	2SC945-(K,P,Q,R)		1	B
	2220 2456	Transistor	2SC945(K,P,Q,R)-T		2	B
	2230 4135	Transistor	2SD1853-AA		2	B
	2230 5280	Transistor	2SD1192		1	B
	2301 0127	Diode	1SR35-100A		2	B
	2310 9174	Zener diode	HZ-24-C2		1	B
	2310 9182	Zener diode	HZ-4-C1		1	B
	2390 0140	Diode	1SS270-TD-T		1	B
	2520 1680	Ceramic oscillator	CST4.00MGW		1	A
		Carbon film resistor	R-20-750-J-T24-T		1	X
		Carbon film resistor	R-20-2K-J-T24-T		1	X
		Carbon film resistor	R-20-220-J-T24-T		6	X
		Carbon film resistor	R-20-560-J-T24-T		2	X
		Carbon film resistor	R-20-1K-J-T24-T		9	X
		Carbon film resistor	R-20-2.2K-J-T24-T		2	X
		Carbon film resistor	R-20-3.3K-J-T24-T		1	X
		Carbon film resistor	R-20-4.7K-J-T24-T		2	X
		Carbon film resistor	R-20-10K-J-T24-T		9	X
		Carbon film resistor	R-20-150K-J-T24-T		2	X
		Carbon film resistor	R-20-1M-J-T24-T		1	X
		Carbon film resistor	R-20-2.7K-J-T24-T		2	X
		Carbon film resistor	R-20-12K-J-T24-T		1	X
		Carbon film resistor	R-20-62K-J-T24-T		2	X
		Carbon film resistor	R-20-22-J-T24-T		1	X
		Carbon film resistor	R-20-22K-J-T24-T		4	X
		Carbon film resistor	R-20-56K-J-T24-T		1	X
		Carbon film resistor	R-20-6.8K-J-T24-T		1	X
		Carbon film resistor	R-20-1.2K-J-T24-T		2	X
		Carbon film resistor	R-50X-2K-J		1	X
		RC network	EXBY14B379J		2	X
	2739 5002	Potentionmeter	3321P-1-503		1	A
		Electrolytic capacitor	10RE2-220		3	X
		Electrolytic capacitor	50RE2-1		1	X
		Electrolytic capacitor	35RE3-1000		2	X
		Electrolytic capacitor	100RE2-1-T2-T		1	X
		Ceramic capacitor	HE70SJYB332K		2	X
		Ceramic capacitor	RT-HE40TKYB471K-T		5	X
		Ceramic capacitor	RT-HE40TKYB101K-T		2	X
		Ceramic capacitor	RT-HE95TKYB682K-T		1	X
		TF capacitor	ECQ-V1H-104-JZ3-T		4	X
		TF capacitor	ECQ-B1H103KF3-T		12	X
		Inductor	EXC-ELSA35		2	X
3	3500 5781	Connector 3pin	W-P7503		1	C
4	3500 5790	Connector 10pin	W-P7910		1	C
5	3500 5803	Connector 15pin	W-P7915		1	C
6	3500 5811	Connector 4pin	W-P7904		1	C
7	5560 0511	Wire band	BK-1		1	X
9	6231 7540	SLIP IF sub ass'y	E310627A*1		1	B
10	6220 4672	SLIP IF sub ass'y	E310628*1		1	B
11	6220 6039	W-A2404 connector sub ass'y	E310482-6(#24-100)		1	B
		PCB E901-1 (Without components)	E210521B-1		1	
		Housing block				
12	6220 4681	Lamp case	E410767-1		1	X
13	6248 0627	Upper case sub ass'y	E310538*4		1	C
14	6220 4699	Diffusion plate	E410768-1		1	C
15	6248 0655	Ribbon caver sub ass'y	E411894*2		1	C
16	6220 5075	Insulation sheet	E410920-1		1	X
17	6002 3514	Wire fixing metal	P4454-1		1	X
18	6231 9597	Shield plate	E310516A-1		1	X
19	6220 4613	Shield spacer	E310517-1		1	X
20	6248 0641	Lower case sub ass'y	E310539A*4		1	C
21	6236 6133	Connector sub ass'y	E310863B*1		1	C
22	3030 4055	Ferrite core	L5T18X6X10		1	X
23	1000 7941	Printer unit	MODEL-290-001		1	A
		Screw 2.6x6 ZMC-3	2.6X6 ZMC-3		2	X
		Screw 4x6 ZMC-3	4X6 ZMC-3		1	X
		Screw 3x10 ZMC-3	3X10 ZMC-3		1	X
		Screw 3x8 ZMC-3	3X8 ZMC-3		1	X
		Screw 3x6 ZMC-3	3X6 ZMC-3		2	X
		Screw 2.3x6 ZMC-3	2.3X6 ZMC-3		2	X
		Screw 3x8 ZMC-3	3X8 ZMC-3		6	X
		Screw 3x10	3X10		2	X
		Screw 3x10 ZMC-3	3X10 ZMC-3		4	X
		Screw 3x6 ZMC-3	3X6 ZMC-3		1	X
		Earth metal	E411468A-1		1	X

6. PRINTER UNIT MODEL-290



PRINTER UNIT MODEL-290

Item	Code No.	Parts Name	Specification	Version	Q	R
	Driving mechanism components					
100	0008 7580	Motor ass'y	F250051000		1	A
101	0008 7581	Motor gear	F250051020		1	B
102	0008 7582	C.B. screw M2×3	B010309411		1	X
103	0008 7583	Motor mount plate	F250002010		1	X
104	0008 7584	Shaft holder guide	F250002020		1	C
105	0008 7585	Guide shaft	F250002030		1	C
106	0008 7586	Return support spring	F230004030		1	B
107	0008 7587	Cup screw (S tight) M2.5×5	B300302211		3	X
108	0003 0791	Retaining ring TYPE-E(1.5)	B150300311		1	B
109	0008 7588	Carriage spring	F250003000		1	B
110	0008 7582	C.B. screw M2X3	B010309411		1	X
111	0008 7589	Intermittent gear	F250101010		1	B
112	0008 7587	Cup screw (S tight) M2.5×5	B300302211		4	X
	Detecting mechanism components					
300	0008 7591	R detector ass'y	F230003000		1	B
301	0008 7592	BOF cover	F250153020		1	C
	Printing mechanism components					
400	0008 7593	Carrier drive cam shaft ass'y	F250201000		1	A
401	0008 7594	Dot head unit H	F230727000		1	A
	Paper feeding mechanism components					
500	0008 7595	Paper hold roller ass'y	F250251000		1	B
501	0007 4057	Retaining ring TYPE-E(2)	B150300411		1	B
502	0008 7596	Paper feed motor mount plate sub ass'y	F250253000		1	C
503	0008 7597	Paper feed motor	F250252010		1	A
504	0008 7598	Cup screw S tight (Flat type)	B300500211		2	X
505	0008 7599	Paper feed transmission gear	F250254010		1	B
506	0008 7600	Leaf spring	B101250590		1	B
507	0008 7587	Cup screw (S tight) M2.5×5	B300302211		2	X
508	0008 7601	Paper hold lever sub ass'y	F250262000		1	B
509	0008 7602	Release cam sub ass'y	F250263000		1	B
510	0008 7603	Paper feed roller sub ass'y	F250264000		1	B
511	0008 7604	Platen	F250261010		1	C
512	0008 7605	Platen adjustment roller	F250261020		2	B
513	0008 7606	Platen adjustment roller holder	F250261030		2	B
514	0008 7607	Release cam spring	F250261040		1	B
515	0003 0791	Retaining ring TYPE-E(1.5)	B150300311		1	B
516	0008 7608	Paper guide sub ass'y	F250265000		1	B
517	0008 7609	Paper hold lever shaft	F250260020		1	B
518	0008 7610	Paper hold lever spring	F250260030		1	B
519	0008 7611	C.T.B.S. screw M2.5×5	B300202211		1	X
520	0003 0791	Retaining ring TYPE-E(1.5)	B150300311		1	B
	Inking mechanism components					
600	0008 7612	Ribbon frame sub ass'y	F250352001		1	B
602	0008 7613	Ribbon roll shaft	F230001030		1	B
603	0008 7614	Ribbon gear	F230001040		1	B
604	0003 0715	Retaining ring TYPE-E(4)	B150300711		1	B

Item	Code No.	Parts Name	Specification	Version	Q	R
	Connector					
800	0008 7615	Main circuit board ass'y	F250601000		1	B
810	0008 7587	Cup screw (S tight) M2.5×5	B300302211		1	X
	Option					
1	0008 7616	TOF sensor ass'y	F250151000		1	B
2	0008 7617	BOF sensor ass'y	F250152000		1	B
3	0008 7618	Document table 176-085	F250254020		1	C
4	0008 7611	C.T.B.S. screw M2.5×5	B300202211		2	X
5	0008 7619	C.C.S. screw M3×6	B300304211		2	X
6	0008 7620	Main circuit board insulation cover	F250602010		1	C
10	0008 7621	Stopper guide lever	F250266010		1	B
11	0008 7622	Form stopper	F250266020		1	B
12	0008 7623	Stopper actuate lever	F250266030		1	B
13	0008 7624	Form stopper spring	F250266040		1	B
14	0007 4057	Retaining ring TYPE-E(2)	B150300411		1	B
15	0007 2308	Cup screw M2.5×4	B040301311		1	X